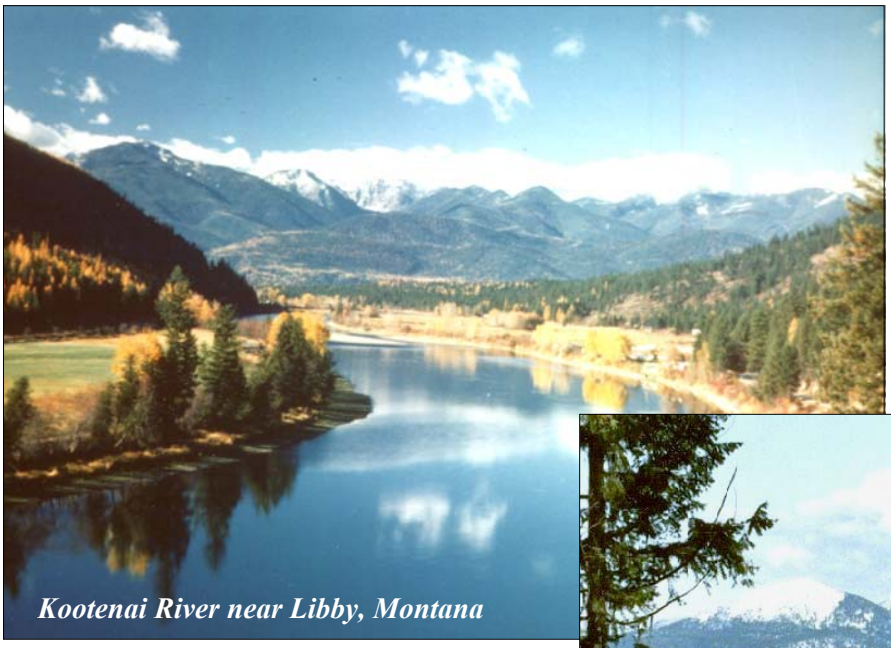
United States Department of Agriculture

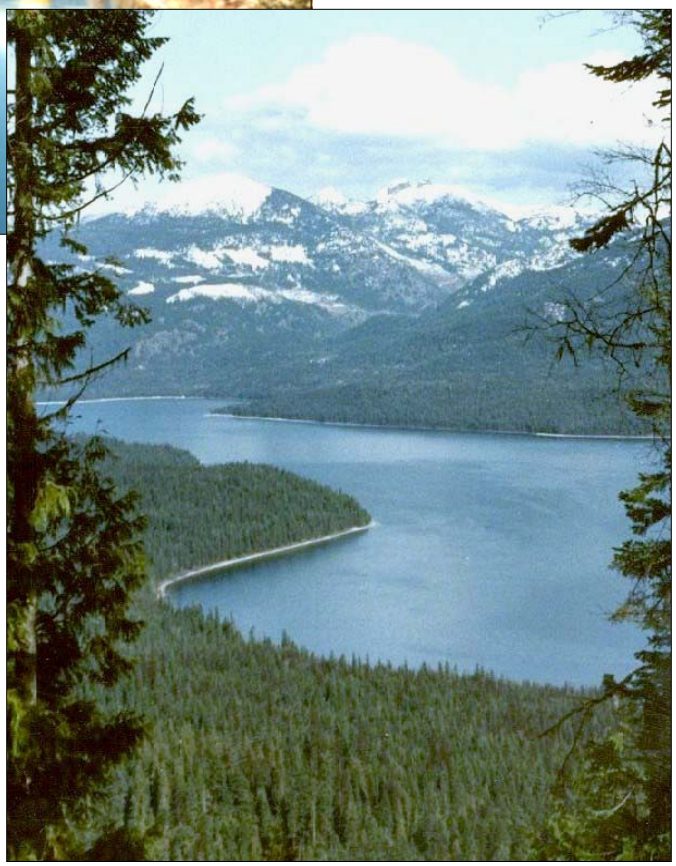
Forest Service

Kootenai and Idaho Panhandle National Forests

TECHNICAL REPORT
Analysis of the Management Situation for Revision of the Kootenai and Idaho Panhandle Forest Plans
March 2003



Kootenai River near Libby, Montana



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TECHNICAL REPORT

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Preface

Purpose of the Analysis of the Management Situation Technical Report

Two reports have been prepared to present the results of the Analysis of the Management Situation (AMS) process. The first is a shorter report titled Analysis of the Management Situation for Revision of the Kootenai and Idaho Panhandle Forest Plans, March 2003. This document is referred to as the AMS and focuses on what needs to change from the 1987 Forest Plans. It is suggested that all readers start with that document.

For people wanting more detailed information, this Technical Report has been prepared. The Technical Report provides additional information on the seven Revision Topics, including historic and existing conditions and trends, and the results of public involvement activities. As the title of this report implies, the information is more technical and detailed than in the AMS. The information relative to the Revision Topics will continue to be developed as additional analysis is completed for the DEIS.

The introductory and background information presented in the AMS is not repeated in this technical report. See the AMS for more information regarding the planning zone, purpose of the AMS, planning process, and the ecological, social and economic context.

CHAPTER 1 –REVISION TOPICS

Revision topics are broad categorizations of the significant issues that have been identified where resource conditions, technical knowledge, or public perceptions of resource management have created a potential "need for change." They have been identified through monitoring and evaluation, current science and assessments, and our daily contacts with the people who work in and recreate on our national forests. Revision topics may cover one or more significant issues identified on the forest.

If the 1987 Forest Plans were not being revised, resolution of any one of these topics would generally result in a significant amendment for the following reasons:

- Changes in resource management could result in significant changes in the mix of goods and services the forest is producing.
- Changes in resource management could indicate that the 1987 Forest Plan direction needs change over large areas of the forest.
- There appears to be no clear public consensus on how to resolve the topics.

This Chapter describes the seven Revision Topics, which are listed below:

1) **Vegetation**
2) **Fire Risk**
3) **Timber Production**
4) **Wildlife**
5) **Watersheds and Aquatic Species**
6) **Inventoried Roadless Areas and Proposed Wilderness Areas**
7) **Access and Recreation**

Each Revision Topic is described using the following outline:

- **Need for Change** (Describes how resource conditions have changed and the need to change Forest Plan direction.)
    - Laws and Regulations
    - Forest Service Strategic Plan
    - The Forest Plans and Monitoring and Evaluation
- **Planning Questions for each Revision Topic**
    - Planning questions have been developed to provide context for each Revision Topic. These questions are followed by a description of the historic and current condition and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.
    - Planning Question – "What are the implications of continuing under current management direction?" This information describes what would happen if we continue to manage under the 1987 Forest Plans and substantiates the need for change.

Revision Topic - Vegetation

Need for Change

Principles of biological diversity and landscape, fire, wildlife, and human ecology have advanced and are better understood since development of the 1987 Forest Plans. There is now an increased focus and scientific understanding of sustainability, disturbance processes, and vegetation management. The 1987 Forest Plans were generally focused on single resources, narrow in scope, and output-driven. Standards and guidelines were at times conflicting, with little recognition of the interrelationship of resources and the need to manage ecosystems at various scales. Management Areas (MA) tended to be small and fragmented. Most MAs fell under a timber-management emphasis, with silvicultural prescriptions that maximized growth and yield of timber. Resources other than timber were a constraint to the production of timber outputs. Although most MAs were defined generally along topographic features, they were not based on ecological systems.

Forest Plan monitoring, Geographic Area (GA) assessments, the Northern Region Overview, and the Interior Columbia River Basin Ecosystem Management Project (ICBEMP) have identified problems and demonstrate a need for change in maintaining terrestrial sustainability on NFS lands. Examples of findings from these documents include:

- A lack of early seral tree species (examples include ponderosa pine and western larch in the uplands, cottonwood in riparian areas, and blue wildrye in grasslands)
- An increased amount of shade-tolerant, fire intolerant, and insect and disease prone tree and shrub species dominating the landscape.
- Higher fuel loading resulting from decades of fire suppression
- A reduction in large snags on portions of the landscape.
- A decrease in interior habitat in late successional stands as a result of past timber harvest.

Laws and Regulations

The concept of sustainability of the ecosystem has been an important objective on NFS lands since Congress passed the Organic Administration Act of June 4, 1897. The Organic Act gave the Forest Service the authority to "regulate the Forests occupancy and use and to preserve the forests therein from destruction" (16 U.S.C. 551).

Congress enacted the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.) "…to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man, [and] enrich the understanding of the ecological systems and natural resources important to the nation" (42 U.S.C. 4321).

The National Forest Management Act (NFMA) of 1976 (16 U.S.C. 1660(6)), requires the Forest Service to manage national forests and grasslands under land management plans that provide for multiple uses and sustained yields. Development of the land management plans as directed under the NFMA must include "integrated consideration of physical, biological, economic, and other sciences" (16 U.S.C. 1604(b)). The act requires regulations which "…provide for diversity of plant and animal communities" and also "…steps taken to preserve the diversity of tree species similar to that existing in the region."

The 1982 Planning Regulations (36 CFR 219) strengthen and amplify the diversity requirements in NFMA. The 1982 Planning Regulations require the Forest Service to "…preserve and enhance the diversity of plant and animal communities…so that it is at least as great as that would be expected in a natural forest and the diversity of tree species similar to that existing in the planning area." Minimum management requirements include:

- Preservation of diversity
- Prevention of "impairment of the productivity of the land"
- Using "ecologically acceptable" strategies to "prevent or reduce serious, long lasting hazard and damage from pest organisms"

The 1982 Planning Regulations also require that "inventories shall include quantitative data making possible the evaluation of diversity in terms of prior and present conditions".

In addition to, and in concert with NFMA and NEPA, one of the purposes of the Endangered Species Act (ESA) of 1973 is "to provide means whereby the ecosystems upon which endangered species and threatened species depend may be conserved…" (16 U.S.C. 1531(b) 1973, as amended).

Forest Service Strategic Plan

The goals and objectives of the USDA Forest Service Strategic Plan (Revision 2000) guide future agency actions. The current mission statement is "To sustain the health, diversity and productivity of the Nation's forests and grasslands to meet the needs of present and future generations." The goals and objectives related to terrestrial sustainability are:

Goal 1 "Ecosystem Health" states: Promote ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grasslands and watersheds.

> *Objective 1b states:* Provide ecological conditions to sustain viable populations of native and desired non-native species and to achieve objectives for management indicator species (MIS)/focal species.
>
> *Objective 1c states:* Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from fires, insects and diseases and invasive species.

Strategies to achieve the objectives above are detailed on pages 16-19 of the Strategic Plan (USDA 2000a).

The Forest Plans and Monitoring and Evaluation

Fifteen years of implementation and monitoring of management activities also demonstrate a need to revise vegetation management direction. There have been extensive changes in vegetation type and size classes (e.g. western white pine, whitebark pine, ponderosa pine, western larch, aspen, cottonwood, some native forbs and grasses, snags, down wood) from historic ranges, which may increase the risk and uncertainty in managing for contributions towards ecological sustainability. Current management direction does not address these changes or provide tools for restoring these ecosystems.

Disturbance processes, such as wildfire and insects and disease, have also changed from historic ranges. Increased tree density and fuel loading as a result of fire suppression has created stress on forests, resulting in increased insect and disease activity. This, in turn, has resulted in more intense wildfires over a greater land area than existed historically. In addition, there is an increase in the number of people living adjacent to and within the forests. This increase of population in the wildland-urban interface limits fire activity and creates a need to deal with acceptable fuel treatment options. Current management direction does not address these changes and the need for increased fuel treatments.

State Weed Management Plans (Idaho, 1999 and Montana, 2001), Forest Plan monitoring, and assessments, indicate noxious weeds are increasing their infestation areas (USDA 1998a pg. 59, 1998b). Several new invaders have been found, indicating an increase in noxious weed diversity. The 1987 Forest Plans do not adequately cover weed management.

The listing of additional species under the Endangered Species Act (ESA) since the 1987 Forest Plans were approved (e.g, water howellia, Ute ladies tresses, and Spalding's catchfly) also demonstrates the need for updating Forest Plan direction for vegetation. The number of sensitive plants, as designated by the Regional Forester, has also increased dramatically since the 1987 Forest Plans (USDA, 1995b).

Management of late successional forests is an issue on many forest projects. Monitoring indicates both forests are meeting current direction for maintaining and providing for old growth conditions. There may be a need for change to develop revised goals, objectives, or standards for late successional forests to better reflect landscape scale issues related specifically to old growth conditions.

Planning Questions For Vegetation

Planning questions have been developed to provide context to the vegetation revision topic. These questions are followed by a description of the historic and current condition and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.

Planning Question - What are the historic and current disturbance processes on the KIPZ and what are the trends?

Historic And Current Disturbance Processes - Weather

The overall climatic condition and vegetative composition on the KNF and IPNFs has remained relatively uniform for approximately the past 2,500 years (Chatters and Leavell 1994). Variations have occurred during this time period such as the warmer and drier Little Climatic Optimum (900-1300 AD) and the more moist and cool Little Ice Age (1300-1860 AD). Within this timeframe, disturbance processes together with landform and other environmental elements are the major factors influencing the patterns of habitats across the landscape. In turn, species abundance and distribution are a result of this dynamic pattern. Native plants and animals today have adapted to these climatic and disturbance regimes throughout the past 2,500 years.

Climatic Variability

The Interior Columbia River Basin, which includes the KNF and IPNFs, is particularly dynamic because it has a transition-type climate, which is influenced by three competing air masses:

1. moist, moderate temperature, Pacific inland maritime airflow, from the west;
2. dry continental air mass with more extremes in temperature, from the east;
3. cold, dry arctic air, from the north.

Because of the strong influence of inland marine airflow, precipitation in northern Idaho and northwest Montana is generally heavy compared to the rest of the Rocky Mountains. However, precipitation tends to vary on a decadal basis, with wet periods and dry periods each lasting several years to decades (Finklin and Fischer 1987). Extended droughts raise the fire danger and stress trees, especially the more drought intolerant species. During drought times, these stressed trees are less able to resist insect and pathogen attacks.

This climatic variability creates an environment prone to a high frequency of a variety of disturbances. Rocky Mountain forest ecosystems are (and were historically) a mosaic of disturbance-derived patches of various ages and composition. Historically, fire was the primary disturbance agent throughout most Rocky Mountain ecosystems (Barbour and Billings 2000), but insects, pathogens, and weather events were also important.

Weather Disturbances

Extended droughts, windstorms, ice storms, heavy wet snow storms, and sudden extreme freezes are all weather disturbances that impact forests, either by direct damage to trees or by creating high stress that increases the probabilities of impact from other disturbance agents. In general, weather events raise the probability of subsequent insect or fire disturbances. Trees broken or blown down in severe weather events provide breeding grounds for some bark beetles, which can lead to bark beetle epidemics. Blowdown from weather events and trees killed by insects create woody fuels that increase fire hazard.

Historic And Current Disturbance Processes - Wildfire

Wildfire greatly influenced the composition, structure, and function of vegetation across the landscape. Where fire disturbance was common, ecosystems favored the long-lived, fire-adapted, shade-intolerant tree species (ponderosa pine, larch, white pine, lodgepole pine, and whitebark pine). Shorter-lived, shade-intolerant, fire-adapted tree species (Douglas-fir) were also present in significant amounts, particularly in younger stands, but declined through time due to effects of insects and pathogens. Shade-tolerant, fire-intolerant tree species (cedar, western hemlock, grand fir, and spruce-alpine fir) were certainly present, but rarely survived long enough to dominate stands, except where the interval between fires was unusually long.

Stand-Replacing Fires

Stand-replacing fires remove more than 90% of overstory tree canopy over a significant area and restart the successional sequence. Historically, on landscapes dominated by moist habitat types (as found on the KNF and IPNFs), the mean fire return interval was approximately 200 years, with drier sites burning more frequently and wetter sites burning less frequently (Smith and Fischer 1997; Zack and Morgan 1994).

Major fire years occur most commonly during regional summer droughts. Lightning storms and wind contribute to the likelihood of a major fire year. During major fire years, stand-replacing fires were commonly on the order of tens of thousands of acres, with some individual fire patches 50,000 acres or larger (Pyne 1982; Zack and Morgan 1994). The Coeur d'Alene Fire Study, (based on approximately 1500 tree records) shows that over the last 450 years, there was one-major stand replacing fire episode an average of once every 19 years somewhere in that 570,000 acre river basin.

During major fire events some watersheds were almost entirely burned over, while other large areas were unaffected. In any particular watershed, major stand-replacing disturbances came in pulses, with long intervals between the pulses.

While stand-replacing fires favor long-term dominance by early successional, shade-intolerant tree species, the mean time interval between stand replacing fires was long enough to allow development of mature and old growth forest structural stages, particularly in landscapes where fire intervals tended to be longest.

Re-burns of fires have occurred throughout history. Re-burns have been associated with, and have normally followed, severe fire years that have burned in high intensity conditions. Stand-replacing fires can create a high fuel loading in both standing and down wood. When these fuels season after several years, the load becomes a strong candidate for re-burn when high temperatures, low humidity, and winds combine.

Mixed-Severity Fire

Mixed-severity fires kill at least 10% of the overstory tree canopy, but do not replace the whole stand. Mean fire return intervals typically ranged from 55-85 years, depending upon landscape location. On very moist sites they may have been significantly less common, while on drier sites return intervals were 25 years or less (Smith and Fischer 1997; Zack and Morgan 1994). Mixed-severity fires create an irregular patchy mosaic of small to moderate-sized openings, thinned areas, underburned areas, and unburned areas. Mixed severity fires generally prolonged the period of dominance by early successional fire-adapted species and at a larger scale, allowed for the development of mature and old growth structural stages dominated by large trees. Fire also played many additional ecological roles as a carbon and nutrient recycling agent, dormancy breaking and stimulating agent for herb and shrub seeds and sprouts, and creator of tree cavities and snags (used by wildlife). Historically, mixed-severity fires were extremely variable in size (less than one acre to more than 1,000 acres) and introduced both variable sized patches and internal diversity within larger blocks created by the less frequent stand-replacing fires.

Low-Severity Fire

Low-severity fires are typically underburns that kill less than 10% of the overstory tree canopy. They are most important on drier habitat types where conditions are dry enough to burn more frequently. Mean fire return intervals typically range from 10 to 30 years (Smith and Fischer 1997). Low-severity fires typically remove most small understory trees, particularly the more shade-tolerant, fire-intolerant species. On drier habitat types where these fires are common, the frequent burns maintain a large portion of the landscape in relatively open stands of large, shade-intolerant, fire-tolerant species (larch and ponderosa pine with lesser amounts of Douglas-fir).

Effects of Historic Fires

These disturbances of large, infrequent stand-replacing wildfires created a dynamic shifting mosaic of forest successional stages on a very large scale. In between the stand-replacing fires, vegetation, aquatic systems, and wildlife habitat had long periods to develop. Intermediate disturbances (low and mixed severity fire; some insect, pathogen, and weather events) introduced finer scale variability within these larger patches. As a result, blocks of wildlife habitat tended to be large, and blocks of mature/late-successional forest also tended to be large, but internally diverse. Terrestrial/aquatic interactions meant that watershed conditions and fish habitat also tended to form a dynamic, large-scale shifting mosaic. Over time any individual watershed could vary from predominantly mature/old forest (with wildlife and fish habitat that results) to almost all recently burned over. However, at any given time, at the larger scale of a river sub-basin (500,000 – 2,000,000 acres), the whole range of these conditions was represented in watershed-sized blocks of thousands, to tens of thousands of acres.

Current Fire Disturbance Process

The Forest Service has been suppressing wildfires for many decades. Suppression efforts have been particularly effective for low and mixed-severity fires, virtually removing this agent as a significant disturbance process for the last 60 years. Rapid suppression of all fire starts has also removed most opportunity for fires to grow in size and intensity to become stand-replacing fires. For example, on the northern portion of the IPNFs, over the last 60 years, there were only a few stand-replacing fires greater than 1,000 acres. Only two of these fires were greater than 10,000 acres, and these occurred in the same month during an extreme weather event.

The success of fire suppression efforts and resource management activities over the last 100 years has had a large influence on the structure and composition of forest and rangeland fuel conditions. The function and process of ecological systems has changed. Fire suppression and some management activities have altered fuel loadings. See the Fire Risk Revision Topic for further discussion of increased fire risk.

Historic And Current Disturbance Processes – Timber Harvest And Prescribed Burn

Timber Harvest

Timber harvests peaked on NFS lands in the 1970's and began to decline. Because of fire suppression, regeneration timber harvests are the current, predominant stand-replacing disturbance process. The majority of acres treated for timber harvest under the goals and objectives of the 1980's Forest Plans were even-age, regeneration prescriptions.

Regeneration harvest systems (clearcut, seed-tree, shelterwood) followed by prescribed fire can emulate some of the functions of stand-replacing fire, but not all of them. These silvicultural systems are generally successful in regenerating mixed species stands dominated by early successional shade-intolerant species. However, traditional regeneration harvest created unnaturally uniform conditions, and did not leave the scattered residual snags, residual live tree patches and scattered fire-tolerant large live trees (larch and ponderosa pine) that were characteristic of historic fires. In addition, the size of regeneration harvest units (2 to 40 acres) has been much smaller than patches created by historic, natural-fire regimes. This is now beginning to change, with greater utilization of snag retention standards, new

silvicultural systems such as irregular seed-tree and shelterwood systems with reserves, and increasing size of regeneration harvest units. Results of even-age, regeneration prescriptions primarily limited to 40 acres in size while deferring all acres in between from any disturbance have shaped the landscape and modified habitat and processes all across the KIPZ.

Historically, approximately 20% of the overall, generalized landscape of the KIPZ was in an "old growth", or late seral condition (Losensky 1993). Since every acre had the potential to be old growth, this successional stage of vegetative development shifted across the landscape in response to the intensity and frequency of disturbance. Old growth was classical, multi-story, multi-age forest only in moist riparian areas and upper elevation cool, moist sites. Old growth in warm, dry stands with historic frequent, low intensity fire events were characterized by open, park-like, mature trees with light understory. Approximately 20% of the historic landscape was also in an early seral state (Losensky 1993). Stand replacing fires occurred at different rates and patch sizes throughout. Intervals between stand replacing events varied from 150 to 400 years in the cool, moist environment and 150 to 200 years in warm, moist habitats (Leavell 2000).

Approximately 60% of the landscape was in a varied, mixed-age, mixed-height, mixed-conifer, and mid-seral condition (Losensky 1993). The historic landscape within a range of variability was a shifting, dynamic mosaic of all these age and size class proportions as diverse as the dissected landscape and environment. Structure, composition, and function shifted proportionally in response to disturbance. The historic landscape was very different from the landscape being shaped by the 1980's Forest Plans (Leavell 2000).

Salvage and partial cut harvesting (sanitation harvest, individual tree selection, commercial thin) somewhat emulate the effects of low and mixed-severity fire in terms of thinning stands. However, these harvest systems also differ from low and mixed-severity natural fire. The salvage and sanitation harvests remove larger dead and dying trees that historically remained to contribute to nutrient cycling, wildlife habitat, and aquatic functions. In most cases, partical cuts maintain a dense overstory canopy.

Prescribed Fire

The effects of timber harvest on successional processes often depend on whether or not harvest is accompanied by prescribed fire. Where prescribed fire is used, impacts on understory vegetation may more closely replicate the effects of natural fire, and favor fire-adapted, shade-intolerant tree species. Where there is timber harvest with neither prescribed fire, nor any other type of site preparation, advanced regeneration of shade-tolerant, drought and fire-intolerant species are more likely to dominate the post-harvest stand (Zack 1994).

Prescribed fire has the potential to emulate many natural-fire ecosystem functions. However, the scale, seasonality, severity, and internal variability of natural fires need to be considered in developing fire prescriptions. To date, prescribed fire efforts of this sort have been relatively small scale compared to natural disturbances.

Historic And Current Disturbance Processes – Insects And Disease

Historic Role of Native Insects and Pathogens

Historically, insects and pathogens played a significant role as disturbance agents. Mountain pine beetles in white pine and lodgepole pine (and occasionally spruce beetles) are capable of serving as stand-replacing agents. These beetles have a mixed effect on succession. They can open canopies enough to provide regeneration opportunities for shade-intolerant tree species, but more commonly they release shade-tolerant understory tree species. By the fuels they create, these bark beetles increase the probability of large stand-replacing fires, which reset the successional sequence. In some situations, Douglas-fir bark beetle can also do the same thing on a smaller scale.

Historically, root pathogens most commonly acted as thinning agents. In natural mixed-species stands, root pathogens caused the greatest mortality in Douglas-fir, followed by true firs. White pine and larch were the most resistant tree species (Hoff and McDonald 1994; Monnig and Byler 1992). Root pathogens thinned out the Douglas-fir and favored the pines and larch, which increased the amount of pine and larch over the first 150+ years of stand life (Rockwell 1917).

White Pine Blister Rust (an Exotic Disturbance)

Historically, western white pine was a common tree species, particularly on the IPNFs, and dominated a very large part of the moist habitat types. In the early part of the 20th century, white pine blister rust (a Eurasian disease) was accidentally introduced to western North America. This exotic disease has been the primary cause for the loss of white pine in this area (Neuenschwander et al. 1999). With the loss of white pine, there have been large increases in the amount of Douglas-fir and subalpine fir cover types, and a major acceleration of forest succession toward shade-tolerant, late-successional true firs, hemlocks, and cedars.

Current Role of Insects and Pathogens

With the impact of white pine blister rust and the decrease in fire, the role of insects and pathogens as disturbance agents is growing and changing. White pine blister rust accounts for major changes in forest successional patterns, having removed more than 90% of two conifer species (white pine and whitebark pine). With the absence of white pine and decreased amounts of ponderosa pine and larch, root pathogens have been transformed from thinning agents into major stand-change agents in Douglas-fir and true fir stands. Root pathogens now produce significant canopy openings on many sites. Depending upon the habitat type, root pathogens may either stall stands in a diseased shrub/sapling/open pole successional stage, or strongly accelerate succession towards shade-tolerant species.

Bark beetles have also changed their role. Because there is more Douglas-fir relative to historical conditions, Douglas-fir bark beetles are now more important change agents than they were historically. In all but the driest habitat types, Douglas-fir bark beetles accelerate succession in the short-run, and in the long-run create fuel conditions and stand structures that may increase the risk of stand-replacing wildfires.

Native insects and pathogens are also now responsible for a relatively much larger proportion of forest disturbance than they were historically. The impact of all these insects and pathogens in the short-run is to strongly accelerate succession towards late seral, shade-tolerant tree species. A recent analysis of pathogen and insect impacts in ecoregion section M333d (Bitterroot Mountains Section) (Hagle et al. 2000) examined successional changes for the period 1935 to 1975. This analysis shows that in 40 years, pathogens and insects changed forest cover types to more late-successional, shade-tolerant tree species on over 80% of the area dominated by moist forest habitat types (Byler and Hagle 2000). The same analysis of insect and pathogen impacts also showed that almost 40% of the moist habitat type area analyzed was either stalled in small tree structures or was actually moving back towards the small tree structures as a result of the removal of the largest trees.

Planning Question - What are the historic and current structures, compositions, and functions of vegetation on the KIPZ and what are the trends?

Historic and Current Structures and Compositions

Ecosystem characteristics include three basic components: structure, composition, and function.

- Structure is the horizontal and vertical physical elements of forests and grasslands and the spatial interrelationships of ecosystems.

- Composition is the component tree, shrub, grass, and forb classes in a stand or community. Function includes energy flows of materials across and within the landscape and how one ecosystem influences another.
- Function also relates to energy processes such as fire, hydrological processes (including floods), and matter and energy exchange throughout the food chain.

Structure can be measured by heights and quantities of the classes listed above. Composition can be measured by numbers and abundances of the same classes. An example of a measurement of fire as a process is intensity and frequency of fire events.

Acres by forest cover type and size class for the KNF and IPNFs are shown in Tables 1-1 and 1-2. These tables are from the Forest Inventory and Analysis (FIA) inventory program and reflect summary information from the data collected. The tables indicate that conifer forests dominate both forests, predominantly in large diameter Douglas-fir. Both forests also have a large amount of acreage in large diameter Englemann spruce/subalpine fir, and lodgepole pine. In addition, the IPNFs has a large amount in the large diameter fir/spruce/mountain hemlock group.

Figure 1-1 shows the forest type composition of KIPZ.

Figure 1-1. KIPZ Forest Types

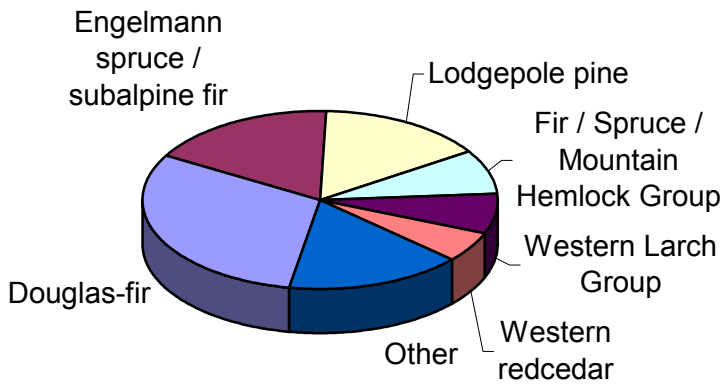


Table 1-1. Acres by Forest Type and Size Class on the Idaho Panhandle National Forests

National Forests: Idaho Panhandle						
	Total	Large diameter	Medium diameter	Small diameter	Non-stocked	Not collected
Douglas-fir	713,900	595,700	45,500	72,700	0	0
Ponderosa pine	36,400	27,300	0	0	9,100	0
Western white pine	81,800	18,200	36,300	27,300	0	0
Fir / Spruce / Mountain Hemlock Group	300,000	227,300	18,200	54,500	0	0
Engelmann spruce	32,000	23,000	0	9,000	0	0
Engelmann spruce / subalpine fir	459,800	341,600	63,600	54,600	0	0
Mountain hemlock	90,900	81,800	9,100	0	0	0
Lodgepole pine	368,400	227,200	104,800	18,200	18,200	0
Western hemlock	136,400	109,100	9,100	0	18,200	0
Western redcedar	190,900	190,900	0	0	0	0
Western Larch Group	118,200	90,900	27,300	0	0	0
Unavailable	42,800	0	0	0	0	42,800
Total	2,571,500	1,933,000	313,900	236,300	45,500	42,800

Source: FIA summary report

Table 1-2. Acres by Forest Type and Size Class on the Kootenai National Forest

National Forest: Kootenai						
	Total	Large diameter	Medium diameter	Small diameter	Non-stocked	Not collected
Douglas-fir	753,700	572,100	49,100	107,900	24,600	0
Ponderosa pine	42,900	18,800	0	18,300	5,800	0
Western white pine	6,300	0	0	6,300	0	0
Fir / Spruce / Mountain Hemlock Group	83,700	77,900	5,800	0	0	0
Engelmann spruce	110,600	79,200	0	31,400	0	0
Engelmann spruce / subalpine fir	358,700	210,400	37,600	87,000	23,700	0
Mountain hemlock	64,700	41,400	17,800	5,500	0	0
Lodgepole pine	372,300	158,300	145,100	68,900	0	0
Western hemlock	57,100	50,800	0	6,300	0	0
Western redcedar	72,000	72,000	0	0	0	0
Western Larch Group	235,900	130,500	61,400	44,000	0	0
Whitebark pine	6,300	6,300	0	0	0	0
Unavailable	82,300	0	0	0	0	82,300
Total	2,246,500	1,417,700	316,800	375,600	54,100	82,300

Source: FIA summary report

Forest-Wide Comparison of Historic vs. Current Vegetation

Figures 1-2 and 1-3 illustrate the change from historic to current vegetation on the KNF and IPNFs. Proportions have obviously been altered from a combination of management activities and fire suppression. Source of data used in making these graphs are a result of TSMRS summaries and historic maps, photos, and fire scar analyses.

Figure 1-2. Historic vs. Current Vegetation for the IPNFs

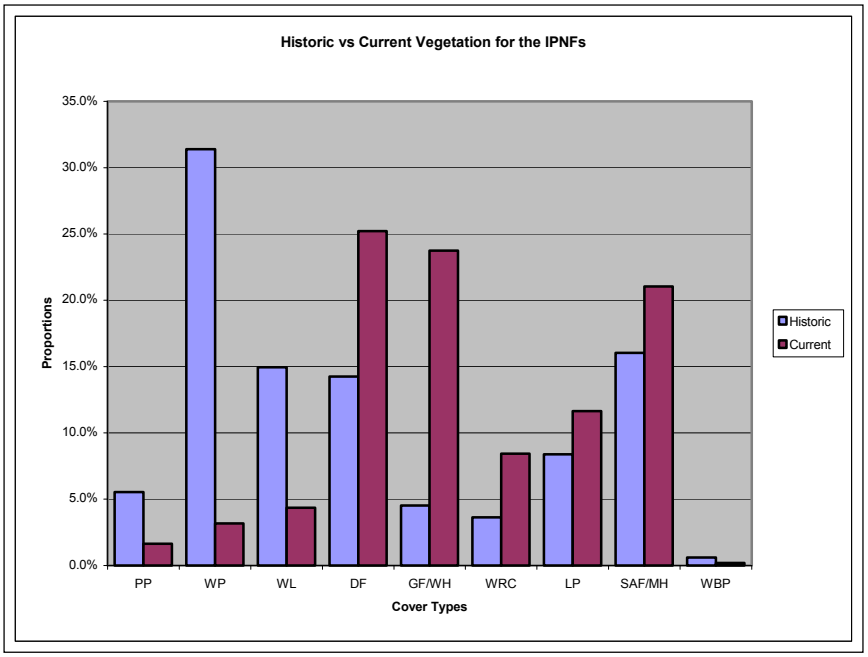
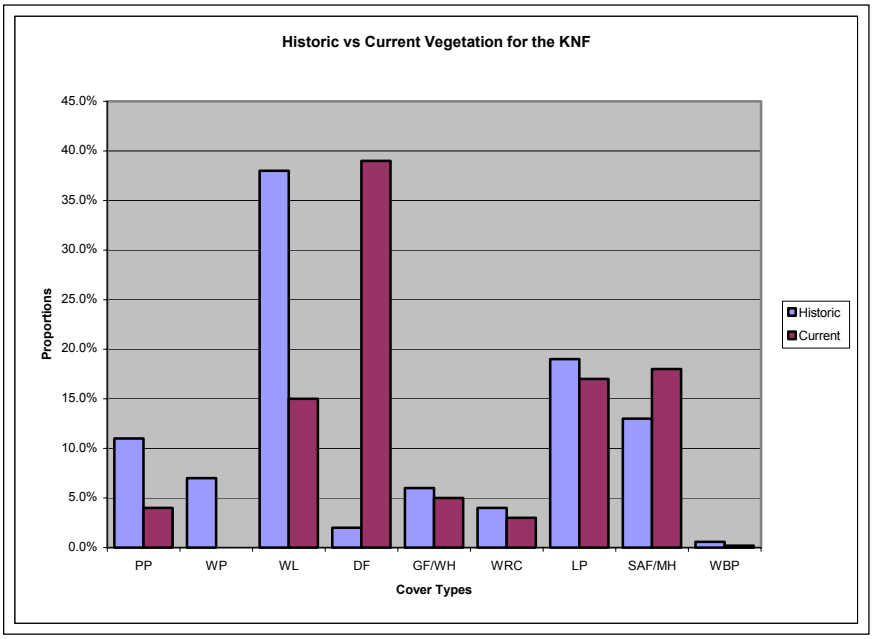


Figure 1-3. Historic vs. Current Vegetation for the KNF



Key Vegetative Changes that have Occurred Across the KIPZ (Coarse scale)

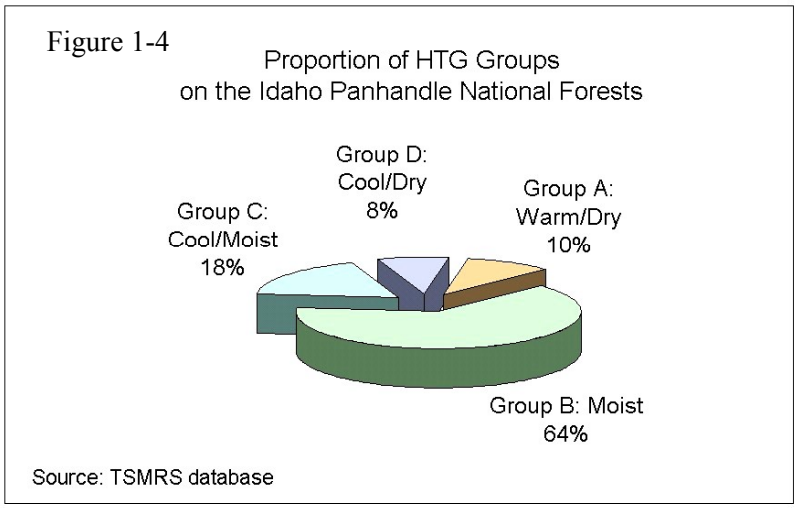
1. The shift from species that generally need high quantities of sunlight to persist, (more sun loving) to those that can tolerate denser and more shaded forest conditions. This condition is considered to be a factor in reducing the resilience and sustainability of the forest.
    a. Beginning in the 1930s, the loss of western white pine in the more moist forest environments (due to the combination of mountain pine beetle, and subsequent white pine blister rust that can continue to cause massive mortality of this species) is particularly significant in forested ecosystems throughout the KIPZ. This forest type has been replaced by fairly large expanses of Douglas-fir, western hemlock, and fir/spruce/mountain hemlock type. Due to the current composition of dense forest conditions and the subsequent susceptibility to bark beetles and root disease, these current types will likely experience future insect, disease and fire disturbance that will effect sustainability of a large portion of the forest ecosystem.
    b. A similar situation exists in the higher elevation settings of the KIPZ with whitebark pine. A combination of mountain pine beetle, whitepine blister rust and fire exclusion has resulted in a replacement to Engelmann spruce/subalpine fir forests. These dense, multi-storied forests are now highly susceptible to very large scale fires and have greatly declined levels of whitebark pine compared to 20-30 years ago.
    c. In both the moist and cool potions of the KIPZ, the shade-intolerant western larch was much more prevalent than today. Large overstory western larch trees were a preferred species for historic logging, and with fire suppression, this species is in decline as a predominant forest type in many areas. This type has been replaced by dense Douglas-fir, and fir/spruce/mountain hemlock forest types that are much less resistant to insects, diseases, and moderate intensity fire.
    d. Within the drier portions of the KIPZ, less large ponderosa pine are present than occurred historically. These large, relatively open grown pines were easily accessible to historic lower elevation logging and with the combination of subsequent fire suppression, many areas have been replaced by dense Douglas-fir. These current conditions are much more susceptible to Douglas-fir beetle, root disease, and severe wildfire.

2. A shift in forest structure including the pattern or arrangement of the forest communities has occurred, and could affect resilience and the sustainability of historic ecological relationships.
    a. In some areas, increases in density have created conditions that make the forest more susceptible to insects, diseases, and severe wildfire, especially if you consider the above species compositional changes that have occurred during the same timeframe.
    b. The pattern and arrangement of forest structures have changed as well. Due to the small-scale pattern of timber harvest during the past several decades, large, spatial “patches” historically common, are now replaced by smaller patches less typical of historical conditions.

Vegetation Response Units and Vegetation Change (Fine-scale)

Vegetation Response Units (VRUs) are aggregations of land having similar capabilities and potentials for management. These ecological units have similar patterns in potential natural communities; soils; hydrologic function; landform and topography; lithology; climate; air quality; and natural processes (nutrient and biomass cycling, succession, productivity, and fire regimes). Each VRU has an associated description of its ecological structure, composition, and function.

Figure 1-4

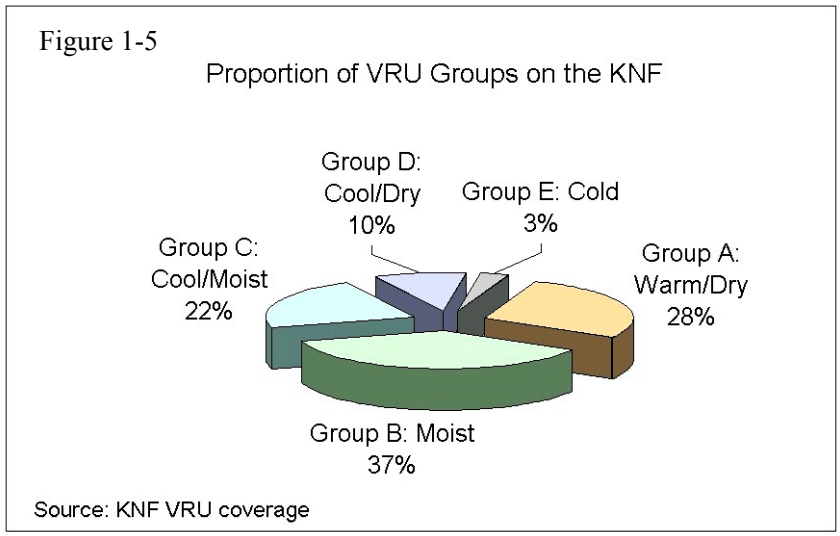


VRUs provide a means to describe and define the components of ecosystems. The structure and function of the component types that make up the ecosystem are an indication of the relative health of ecosystems (USDA Forest Service 1999d).

Vegetation on the IPNFs has been summarized by Habitat Type Groups (HTGs), which are fairly synonymous with VRUs. There are 11 HTGs on the IPNFs and the HTGs were combined into 4 groups that correspond with the VRU groups. There are only 4 groups because the IPNFs further combined the cool/dry and cold HTGs since there is a negligible amount of land in cold habitat types. Figure 1-4 displays the proportion of HTG groups on the IPNFs. For ease of discussion, the term VRU will be used to represent HTG as well.

There are 11 VRUs on the KNF and for ease of discussing historic and current vegetation, similar VRUs have been combined into 5 groups. Figure 1-5 displays the proportion of VRU groups on the KNF.

Figure 1-5

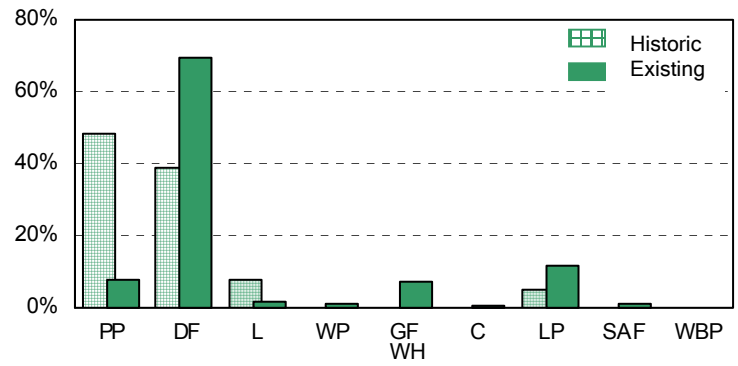


Following is a description of each VRU group on the national forests, including composition, structure, and disturbance processes. For composition and structure, current condition as percentages of species or size class are compared to historic percentages. Because of the uncertainty and change that occurs over time, it is appropriate to display historic conditions as a range. The analysis to determine historic ranges will be completed as part of the DEIS.

Group A: VRU 1/HTG 1 (Warm/Dry), VRU 2/HTG 2 (Moderately Warm/Dry), and VRU 3/HTG 3 (Moderately Warm/ Moderately Dry)

Description: This group contains the more warm and dry habitat types with VRU 1 being the warmest and driest to the more moderate conditions of VRU 3. These sites include warm, dry grasslands to moderately cool and dry upland sites. The dry, lower elevation open ridges are composed of mixed Douglas-fir and ponderosa pine in well-stocked and fairly open-grown conditions. Moderately moist, upland sites and dense draws also include larch and lodgepole pine, with lesser amounts of ponderosa pine. Tree regeneration occurs in patches and is largely absent in the understory, particularly in the driest sites. Annual precipitation ranges from 14" to 30", about 75% of that falling as rain. While the growing season is fairly long, high solar input and moderately shallow soils often result in soils that dry out early in the growing season, which results in low to moderate site productivity.

Figure 1-6 Warm/Dry Habitat Groups on the IPNF
Comparison of Existing and Historic Forest Types

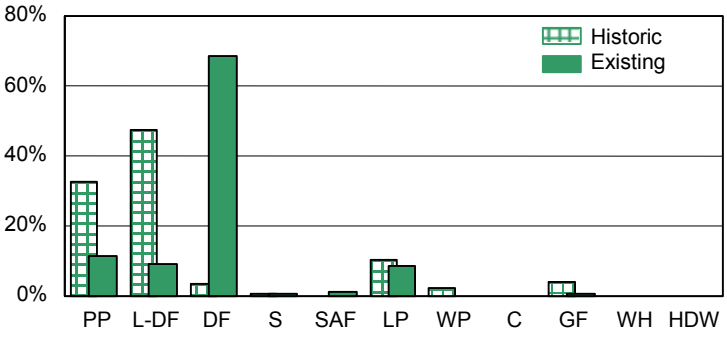


A) SAF also includes MH.
Source: Existing data comes from TSMRS database. Historic data is on file at the IPNF office.

Fire Disturbance: Historically, frequent, low-severity fires were the predominant fire regimes. Mixed-severity fires were also common, particularly in VRU 3. In extreme cases, stand-replacing fires could also occur. Due to fire suppression, numerous fire cycles have been missed in this group, particularly in VRUs 1 and 2. Fires are more likely to be mixed-lethal to lethal as ladder fuels and biomass increases.

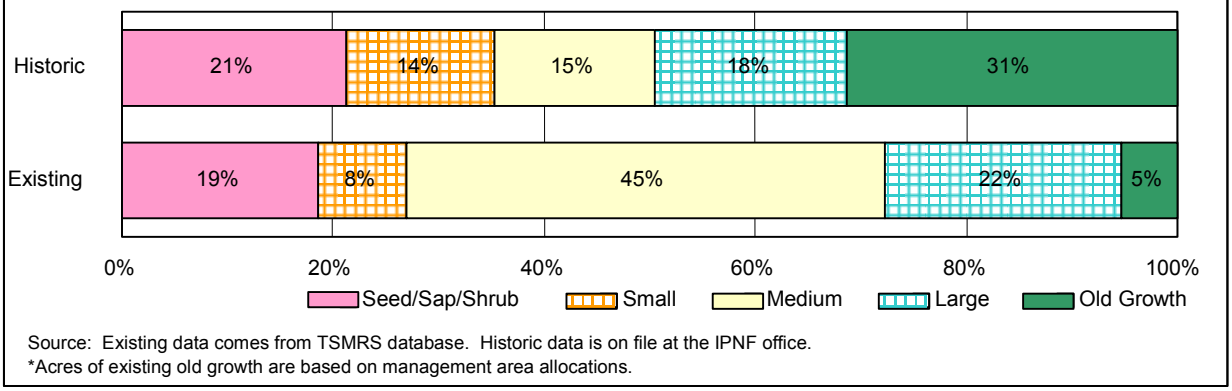
Forest Cover Types: A comparison of historic and existing cover types shows some changes and trends (figures 1-6 and 1-7). In general, there is a decrease in seral species such as ponderosa pine and larch and an increase in Douglas-fir. As stated earlier, this is most likely due to a combination of historic logging of seral ponderosa pine and larch and fire suppression, which allowed understory Douglas-fir to develop.

Figure 1-7
Warm/Dry VRUs on the
Comparison of Existing and Historic



A) Existing condition DF also includes MC forest type. C) Historic condition L consists of L/DF.
B) Existing condition SAF also includes MAF. D) Historic conditon SAF also includes S.
Source: Existing data comes from TSMRS database. Historic data is on file at the KNF office.

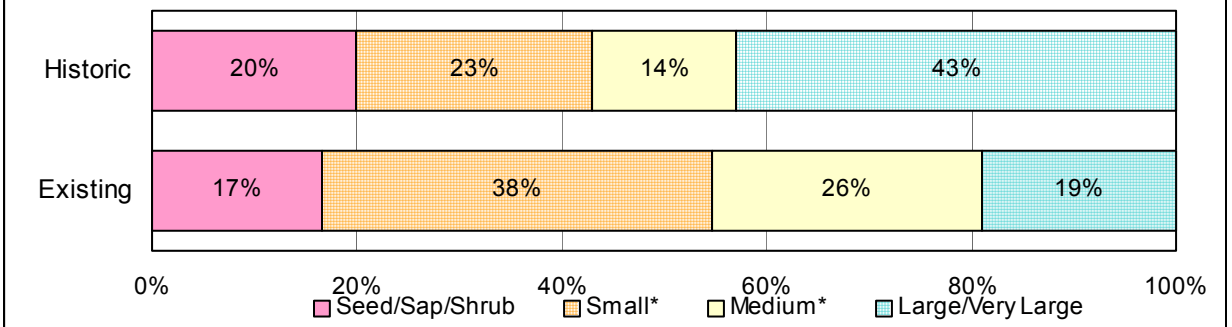
Figure 1-8 Warm/Dry Habitat Groups on the IPNF
Comparison of Existing and Historic Successional Stages



Source: Existing data comes from TSMRS database. Historic data is on file at the IPNF office.
*Acres of existing old growth are based on management area allocations.

Successional Stages: A comparison of historic and existing age-classes shows some changes and trends (figures 1-8 and 1-9). In general, there is currently a higher proportion in the mid- successional stages and a lower proportion in the late-successional stages in comparison to historic conditions. This may be due to historic timber harvest of large overstory ponderosa pine and larch since many areas in this group were easily accessible for timber harvest in the early part of the 20th century. Many stands that were harvested then would now be in mid-successional stage.

Figure 1-9 Warm/Dry VRUs on the KNF
Comparison of Existing and Historic Successional Stages



A) The existing age class Large/Very Large includes all stands coded as multi-aged.
B) A range of conditions existed historically. In Group A this variability is negligible at the 6th or 7th code HUC scale.
Source: Existing data is from TSMRS database. Historic data on file at the KNF office.

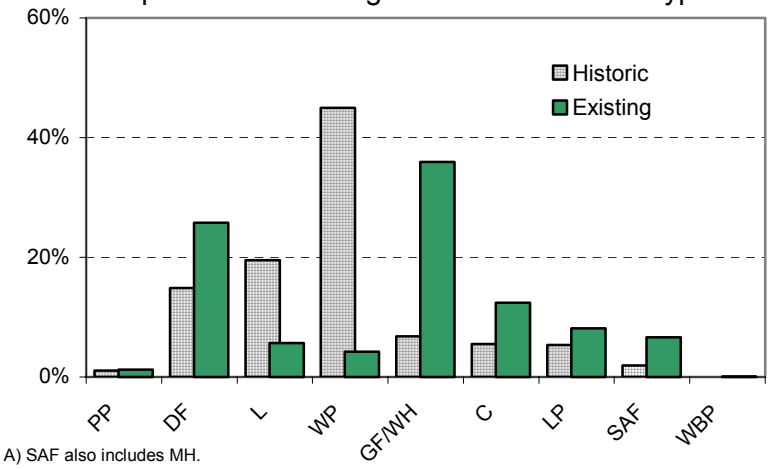
Group B: VRU 4/HTG 4 (Moderately Warm/Moist), VRU 5/HTG 5 (Moderately Cool/Moist), and VRU 6/HTG 6 (Moderately Cool/Wet)

Description: This group occupies most of the moist sites along benches and stream bottoms. The moderating effects of the inland maritime climate ecologically influence this group. This group includes the more moderate sites of VRU 4 and scattered riparian and wet sites of VRU 6. This group is widespread throughout the forest and has the most biological productivity. Precipitation is moderate to high ranging from 30" to 55" per year.

Fire Disturbance: Mixed-severity and stand-replacing fires were common historically in this group.

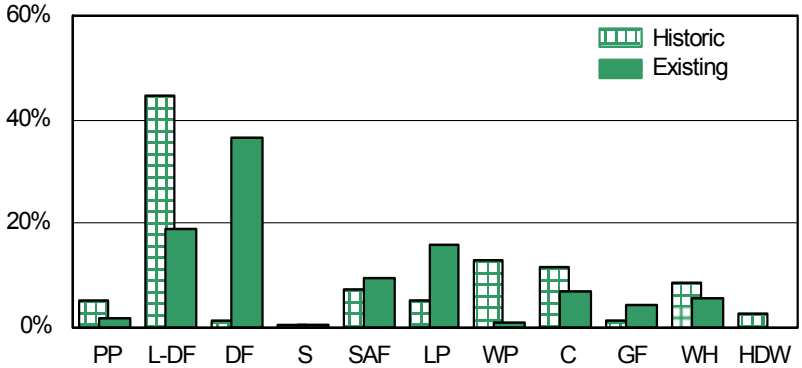
Forest Cover Types: A comparison of historic and current cover types shows some changes and trends (figures 1-10 and 1-11). Major changes are decreases in seral larch and white pine and increases in Douglas-fir and grand fir. The large decrease in white pine is most likely a result of white pine blister rust. The loss of larch may be due to historic logging of overstory larch. Douglas-fir and grand fir now dominate many stands in this group due to the removal of white pine and larch combined with effects due to fire suppression.

Figure 1-10



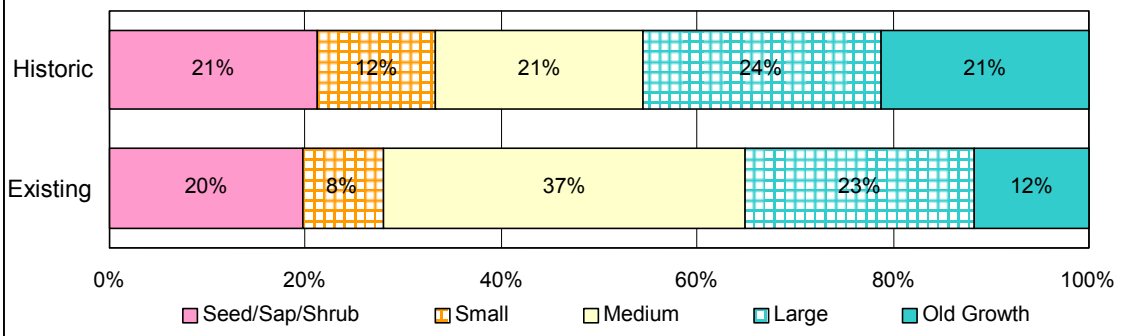
A) SAF also includes MH.
Source: Existing data comes from TSMRS database. Historic data is on file at the IPNF office.

Figure 1-11



A) Existing condition DF also includes MC forest type. C) Historic condition L consists of L/DF.
B) Existing condition SAF also includes MAF. D) Historic conditon SAF also includes S.
Source: Existing data comes from TSMRS database. Historic data is on file at the KNF office.

Figure 1-12 Moist Habitat Groups on the IPNF
Comparison of Existing and Historic Successional Stages

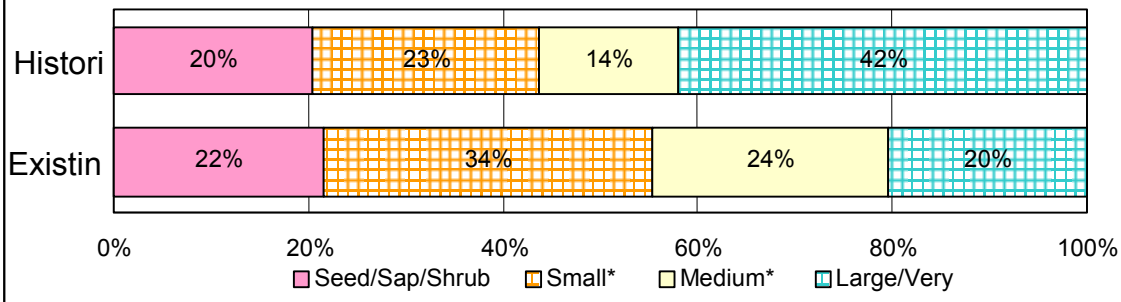


Source: Existing data comes from TSMRS database. Historic data is on file at the IPNF office.
*Acres of existing old growth are based on management area allocations.

Successional Stages: A comparison of historic and existing age-classes shows some changes and trends (figures 1-12 and 1-13).

In general, there is an increase in mid-successional stages and a decrease in late-successional stages in comparison to historic conditions. As the most productive areas on the Forests, timber harvest activities have occurred throughout this group. In particular, older or decadent stands as well as disease-ridden white pine stands have been regenerated, which may be the reason for the decrease in the late-successional stage. In addition, portions of this group experienced stand-replacing fires in the late 1800s and early 1900s, which may contribute to the increase in the mid-successional stages.

Figure 1-13 Moist VRUs on the
Comparison of Existing and Historic



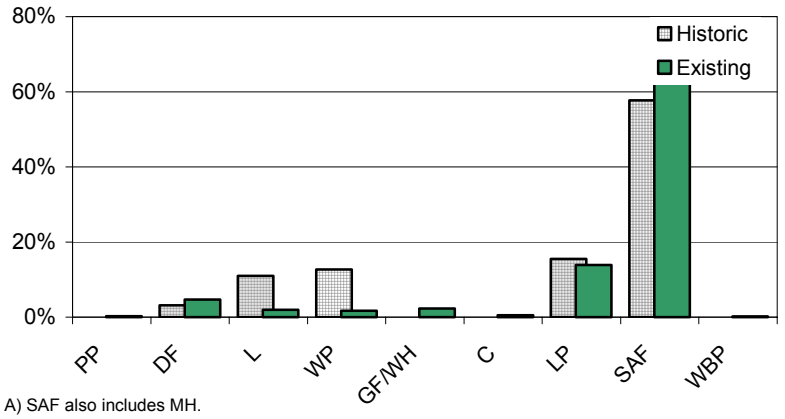
A) The existing age class Large/Very Large includes all stands coded as
B) A range of conditions existed historically. In Group A this variability is negligible at the 6th or 7th code
Source: Existing data is from TSMRS database. Historic data on file at the KNF

Group C: VRU 7/HTG 7 (Cool/Moist) and VRU 8/HTG 8 (Cool/Wet)

Description: This group occurs in the moist, lower subalpine forest setting and is common on northwest to east facing slopes, riparian and poorly drained subalpine sites, and moist frost pockets. This landscape is typically bordered by warmer sites (Group B) and cool, drier subalpine sites (Group D). This group includes characteristics of each. Average precipitation is estimated between 35" and 55" per year, less than half as rain. Vegetative productivity is moderate to high as a result of the high moisture-holding capacity and nutrient productivity of loess deposits, adequate precipitation, and a good growing season.

Fire Disturbance: Both stand-replacing fires and mixed-severity fires occurred in these environments. Thin bark and shallow roots of the dominant tree species mean that low-severity underburns were rare. Little detailed fire history data has been analyzed for these areas. Short snow-free seasons, cooler temperatures, and relatively moist environments mean that conditions for large stand-replacing fires are likely uncommon in these environments.

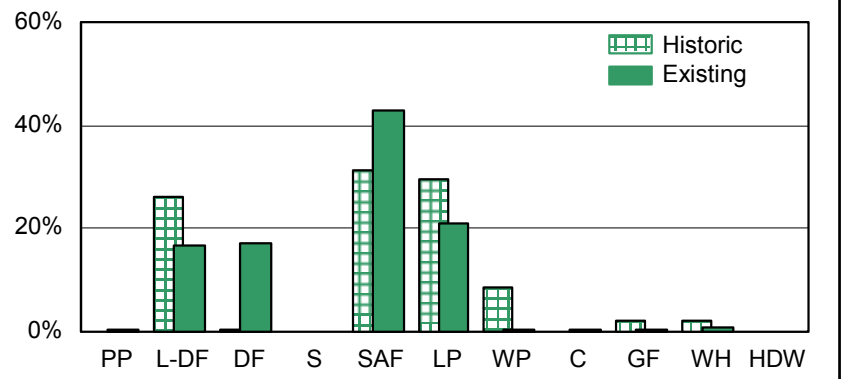
Figure 1-14



A) SAF also includes MH.
Source: Existing data comes from TSMRS database. Historic data is on file at the IPNF office.

However, records of fires are common and some were clearly stand-replacing. The larger stand-replacing fires may be related to major fire events originating in lower elevation, warmer, drier environments. In general, fires were likely to be smaller and patchier in subalpine environments than in warmer low elevation sites. Mean fire return intervals average 150-175 years, but can be much longer or shorter depending upon fire regimes on adjacent lower elevation sites (Smith and Fischer 1997). Although fire suppression has the potential to change landscape patterns on subalpine sites, a smaller suite of potential species means that there's less opportunity for complete change of landscape successional processes.

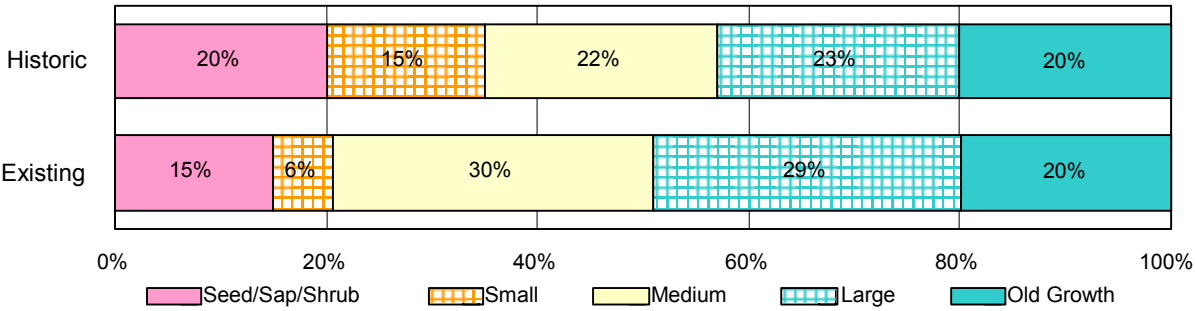
Figure 1-15



A) Existing condition DF also includes MC forest type. C) Historic condition L consists of L/DF.
B) Existing condition SAF also includes MAF. D) Historic conditon SAF also
Source: Existing data comes from TSMRS database. Historic data is on file at the KNF

Forest Cover Types: A comparison of historic and existing cover types shows some changes and general trends (figures 1-14 and 1-15). Major changes are decreases in seral white pine, larch and to a lesser extent, lodgepole pine, and increases in Douglas-fir and spruce-subalpine fir. The large decrease in white pine is most likely a result of white pine blister rust. Logging of overstory larch may contribute to the decrease in larch. The loss of lodgepole pine may be due to mountain pine beetle and subsequent salvage harvesting of dead and dying lodgepole pine stands. Spruce-subalpine fir and Douglas-fir now dominate many stands in this group with declines in seral white pine, larch, and lodgepole pine.

Figure 1-16

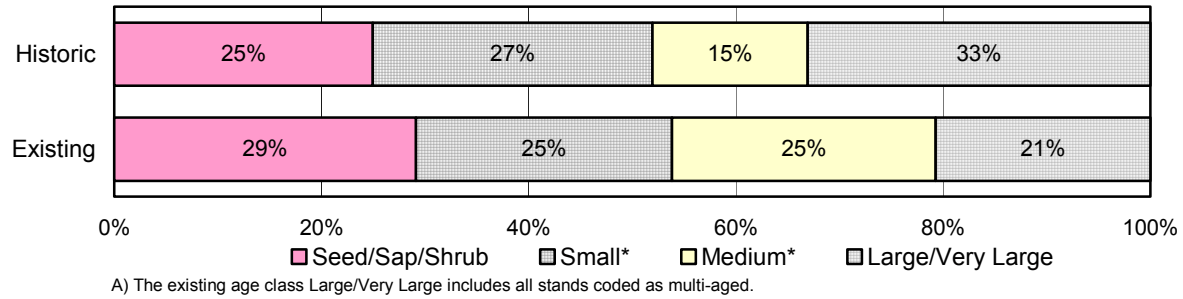


Source: Existing data comes from TSMRS database. Historic data is on file at the IPNF office.
*Acres of existing old growth are based on management area allocations.

Successional Stages: There are slight differences between the KNF and the IPNFs. On the IPNFs, there are increases in the medium and large size classes and a decrease in the small size class (figure 1-16).

On the KNF there is a higher proportion in a medium successional stage and a lower proportion in the large/very large successional stage in comparison to historic conditions (figure 1-17). Areas in this group are highly productive and timber harvest activities have occurred here. In particular, older or decadent stands as well as insect and disease prone lodgepole pine and white pine stands have been regenerated, which may be the reason for the low proportion in the large/very large class. In addition, portions of this group experienced stand-replacing fires in the late 1800s and early 1900s, which may contribute to the high proportion in the medium successional stage.

Figure 1-17



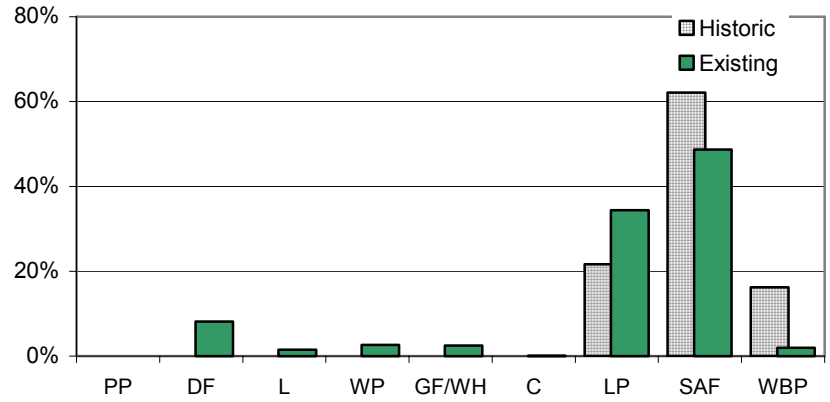
A) The existing age class Large/Very Large includes all stands coded as multi-aged.
B) A range of conditions existed historically. In Group A this variability is negligible at the 6th or 7th code HUC scale.
Source: Existing data is from TSMRS database. Historic data on file at the KNF office

Group D: VRU 9/HTG 9 (Cool/ Moderately Dry) On the IPNFs HTG 10 (Cold/Moderately Dry) and HTG 11 (Cold)

Description: This group is typified by cool and moderately dry conditions with moderate solar input. The climate is characterized by a short growing season with early summer frosts. Annual precipitation ranges from 35”-70”, mostly in the form of snow. Due to generally shallow soils (low water holding capacity), slope position, and aspect, soil moisture is often limited during late summer months. It is generally found on rolling, ridges and upper reaches of convex mountain slopes. Due to slight differences in how the two Forests combined the VRUs, there may be some differences in the comparisons made below. Some of the discussion for Group E would also apply to the IPNFs portion of this group.

Fire Disturbance: The predominant fire regime was stand-replacing. In lodgepole pine dominated areas, the fire return interval averaged 100-115 years.

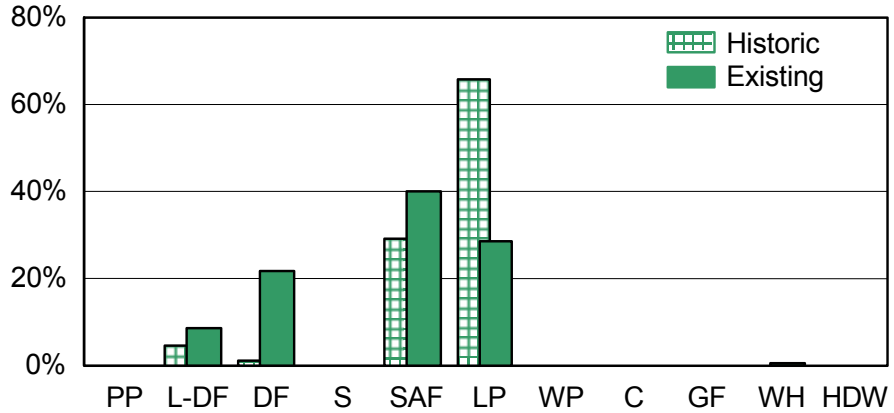
Figure 1-18 Cold/Dry Habitat Groups on the IPNF
Comparison of Existing and Historic Forest Types



A) SAF also includes MH.
Source: Existing data comes from TSMRS database. Historic data is on file at the IPNF office.

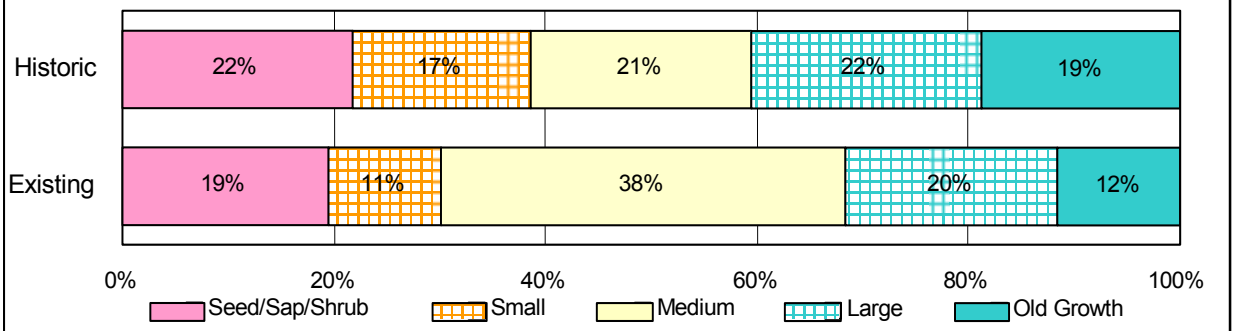
Forest Cover Types: On the IPNFs, whitebark pine occurs in this group. Major changes here are decreases in whitebark pine and spruce-subalpine fir and an increase in lodgepole pine. Whitebark pine has declined dramatically due to white pine blister rust and fire suppression (figure 1-18). On the KNF there has been a decrease in lodgepole pine and increases in Douglas-fir and spruce-subalpine fir (figure 1-19). The loss of lodgepole pine may be due to mountain pine beetle and fire suppression, as lodgepole pine tends to regenerate following stand-replacing fires. The proportions of spruce-subalpine fir and Douglas-fir may have increased due to fire suppression and natural succession from lodgepole pine stands.

Figure 1-19
Cool/Dry VRUs on the KNF
Comparison of Existing and Historic Forest Types



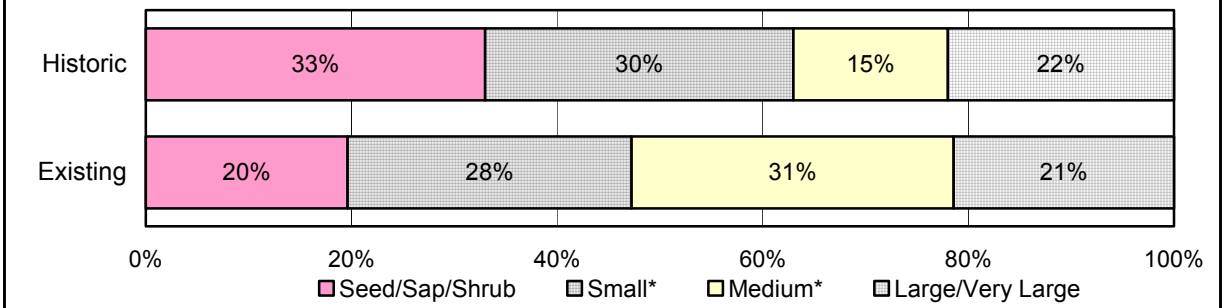
A) Existing condition DF also includes MC forest type. C) Historic condition L consists of L/DF.
B) Existing condition SAF also includes MAF. D) Historic conditon SAF also includes S.
Source: Existing data comes from TSMRS database. Historic data is on file at the KNF office.

Figure 1-20 Cold/Dry Habitat Groups on the IPNF
Comparison of Existing and Historic Successional Stages



Successional Stages: On the IPNFs, there is an increase in medium size class and decreases in old growth and small size classes (figure1-20). On the KNF there is a higher proportion in the medium size class and a lower proportion in the small size class in comparison to historic conditions (figure 1-21). These shifts may be due to the suppression of potentially stand replacing fires.

Figure 1-21 Cool/Dry VRUs on the KNF
Comparison of Existing and Historic Successional Stages



A) The existing age class Large/Very Large includes all stands coded as multi-aged.
B) A range of conditions existed historically. In Group A this variability is negligible at the 6th or 7th code HUC scale.
Source: Existing data is from TSMRS database. Historic data on file at the KNF office.

Group E: VRU 10 (Cold/Moderately Dry) and VRU 11 (Cold)

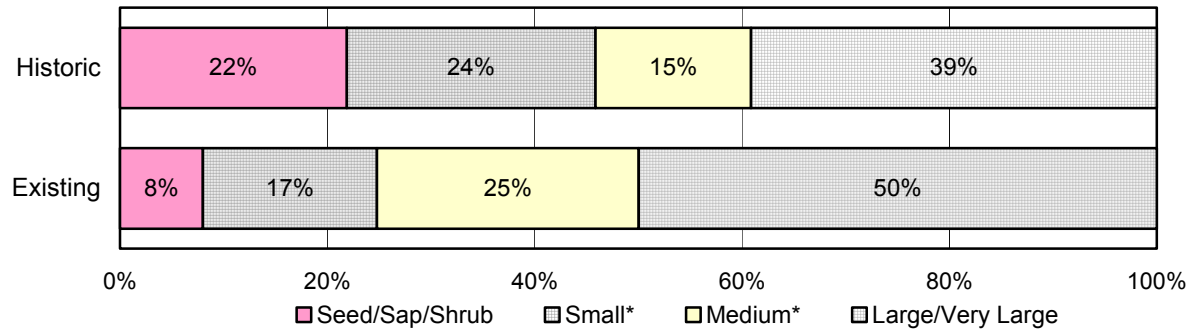
Description: This group occurs on high elevation, cold sites between forest and alpine tundra. It is typified by cold and moderately dry conditions with short day lengths and low to moderate solar input. The climate is characterized by a short growing season with early summer frosts. Annual precipitation ranges from 50" to 90", mostly in the form of snow. Soil moisture is often limited during the summer months due to the low water holding capacity of the shallow soils and slope position. This setting occurs on most aspects and is found on upper reaches of fairly steep, convex mountain slopes. It also occurs on very steep alpine ridges and glacial cirque headwalls. The landforms within VRU 11 have been influenced by alpine glaciation and are a complex of forest, avalanche chutes, and rock outcrops.

Fire Disturbance: The predominant fire regime was low to mixed-severity at 35-300+ years. Stand-replacement fires could also occur at 200+ years.

Forest Cover Types on the KNF: Quantitative historic data for cover types was not available as in the other groups. Therefore, this discussion is based on the VRU descriptions (USDA Forest Service 1999d). Based on a TSMRS query, the most common forest type in this group is spruce-subalpine fir (84%). Historically, common species were whitebark pine, Engelmann spruce, lodgepole pine, with some subalpine fir and mountain hemlock. Due to fire exclusion, many whitebark pine stands are being replaced by mixed coniferous and spruce-subalpine fir forests. In recent decades whitebark pine distribution has also decreased because of mountain pine beetle and white pine blister rust.

Successional Stages on the KNF: A comparison of historic and existing age-classes shows some changes and general trends (figure 1-22). In general, there is currently a higher proportion in the large/very large successional stage and a lower proportion in the younger seed/sap/shrub successional stage in comparison to historic conditions. Most of the area in this group occurs in subalpine settings with very limited harvest activities. This factor combined with fire suppression has favored the development of older stands.

Figure 1-22 Cold VRUs on the KNF
Comparison of Existing and Historic Successional Stages



A) The existing age class Large/Very Large includes all stands coded as multi-aged.
B) A range of conditions existed historically. In Group A this variability is negligible at the 6th or 7th code HUC scale.
Source: Existing data is from TSMRS database. Historic data on file at the KNF office.

Historic And Current Function

Ecosystem function includes energy flows of materials across and within the landscape and how one ecosystem influences another. Function also relates to energy processes such as fire, hydrological processes (including floods), and matter and energy exchange throughout the food chain.

To understand how ecosystems function, KIPZ needs to know more than just how much of various components or structures are present. Among other things, it is important to understand the patterns of how things are arranged on the landscape. Landscape pattern affects wildlife habitat and dispersal, plant habitat and dispersal, disturbance (fire, insects, pathogens) spread and size, ecosystem response to disturbance, and human esthetic values.

Some important interrelated concepts in assessing landscape patterns are patches, interior habitat, and fragmentation. A patch is defined as an area of continuous habitat or as an area capable of facilitating particular habitat functions for given species or species groups. Patches can be identified according to key habitat features of forest structure, composition, and process (UKSB). Interior forest habitat is defined as "The environmental conditions typical of the central or interior part of a habitat patch. They are usually relatively stable and uninfluenced by the changing climatic conditions and other variables (noise, wind, sunlight, temperature, moisture) associated with edge conditions" (Dunster and Dunster 1996). In general, interior habitat is the opposite of fragmentation (the greater the fragmentation, the

fewer acres of interior forest habitat). The size and shape of forested areas largely determines the size of interior habitat. Obviously, the larger the forested patch is the larger the interior habitat would be. The shape of the forested patch is also important. Interior habitat is maximized when the shape of the forested patch is circular and minimized when the forested patch is linear. Some forested patches may be so narrow that they only provide edge habitat and no interior habitat.

Compared to the historical condition, there are several important changes in landscape patterns. Generally, patch sizes are smaller today than they were historically.

Analysis on the IPNFs shows that early and late-successional patches are smaller and more homogenous in size than historic. Compared to the historical situation, the late successional structural stages are much more fragmented. They are divided into smaller patches with generally more edge and less interior and they are more homogeneous in patch size (fewer large patches). In contrast, the medium size class is a larger percent of the landscape; however, the large patches of medium size class are internally fragmented by numerous small patches of early successional stages created by timber harvest, or patches of medium sized trees are linked together by long skinny leave strips.

The Upper Kootenai Subbasin Review, an analysis conducted on the KNF, shows that patch sizes have decreased across all patch types, including early successional patches (USDA Forest Service 2002). Corresponding with smaller patch sizes are less interior habitat and greater fragmentation. On the KNF, the cool and the moist habitat types seem to have deviated most from historic conditions although all habitat types have declined in amount and size of interior habitat (USDA Forest Service 2002e).

Planning Question - What is the historic and current condition of riparian vegetation on the KIPZ and what are the trends?

Historic Condition Of Riparian Vegetation

Riparian vegetation makes up the green zones bordering lakes, potholes, springs and seeps, peatlands, wet meadows, vernal pools, and ephemeral, intermittent, or perennial streams. This vegetative zone is the interface or linkage between the upland (terrestrial) and deepwater (aquatic) zones (Hansen et al. 1995). Riparian vegetation stabilizes streambanks and aids in reducing streambank damage from ice, log debris, and animal trampling. Trees, shrubs, and herbaceous vegetation within the riparian area provide cover for animals and reduce the velocity and erosive energy of overbank flow during floods (Schumm and Meyer 1979).

Geomorphic and other disturbance processes of both upland and fluvial origin affect aquatic and riparian ecosystems. Geomorphic and fluvial disturbance processes determine the spatial pattern and successional development of riparian vegetation. Valley floor landforms, in particular, valley width, gradient and substrate size, influence the types of streams, riparian vegetation, their extent and distribution. This in turn creates an array of physical habitats within active channels and associated floodplains. Streamside plant communities are major determinants of the abundance and quality of nutritional sources for stream ecosystems (Gregory et al. 1991).

Biotic integrity of aquatic ecosystems depends on the natural and dynamic character of those systems. Streamflow (includes magnitude, frequency, duration, timing, and rate of change) is a critical component of water supply and water quality. Streamflow is strongly correlated with many critical physical-chemical characteristics of rivers and streams. Some of these characteristics include water temperature, channel geomorphology, and habitat diversity. Natural streamflow variability is important in maintaining healthy aquatic ecosystems (Poff et al. 1997).

Historically, aquatic ecosystems on the KNF and IPNFs were areas of greatest vegetation species diversity, refugia for wildlife and vegetation from most upland disturbances, and provided connectivity corridors across the landscape.

Current Condition Of Riparian Vegetation

Disruption and/or alteration of natural flow regimes can change the established pattern of hydrologic variation and disturbance. This alters habitat dynamics and may create new conditions to which native biota may be poorly adapted. A loss in the ability of an aquatic ecosystem to support natural processes and native species may result (Poff et al. 1997).

The INFS of 1995 (USDA Forest Service 1995d) amended the Forest Plans to maintain the integrity of upland and riparian areas within watersheds. The INFS amendment established riparian management objectives, standards and guides, and monitoring guidelines. Since that time, the guidelines have proved generally effective in achieving INFS objectives, but not effective in addressing needs at a finer scale of resolution. An example is related to stream widths. INFS prescribed four categories of interim standard stream widths. These were to be applied until a completed watershed analysis provided an ecological basis for change. The Aquatic Response Unit (ARU) classification completed for the Kootenai addresses modifications to INFISH.

An ARU classification is the preferred method to understand the composition, structure, and function of riparian vegetation. ARUs are determined by temporal and spatial patterns of hydrologic and geomorphic processes within defined valley bottoms of predetermined widths. Departure from a range of variability and/or a proper functioning condition can be determined by either comparison to reference stream reaches within a given valley bottom type (or ARU) undisturbed by human influence or from an understanding of aquatic processes developed through ARUs.

The KNF has developed an ARU classification and inventory. Table 1-3 is a summary description of these ARUs. Additional information can be found in the draft ARU document on file at the Supervisor's Office in Libby. The ARUs have been grouped based on overall similar descriptive characteristics. Each ARU is coded so the first number reflects the dominant stream order. The second and third letters reflect the overall gradient (stream gradient) where "A" is the highest gradient and "C" is the lowest gradient. These classes follow the Rosgen system gradient breaks.

Table 1-3. Summary of ARUs on the Kootenai National Forest

Group	ARU	Proportion of the KNF	Description	Vegetation
1	1A	33%	First and some second order, very steep streams. Commonly found at elevations between 3000-5500'. Major landtype groups are 300 and 400 series. Valley bottoms are narrow.	Grand fir, Black Cottonwood, Western Redcedar, Western Hemlock, Common Snowberry,
1	1AB	19%	First and 2nd order, steep streams. Commonly found at elevations between 2500-5500'. Major landtype group is 300 series. Valley bottoms are fairly narrow.	Western Redcedar, Mountain Alder, Sitka Alder, Fools's Huckleberry, Drummond Willow, Arnica
1	3AB	1%	Third order, steep streams. Commonly found at elevations below 4500'. Major landtype groups are 300 and 400 series, followed by 100 series. Valley bottoms are fairly narrow.	Grand fir, Western Redcedar, Rocky Mountain Maple, Common Prince's-pine, Twinflower, Thimbleberry
2	1B	17%	First and second order, moderate gradient streams. Mainly found at elevations between 2500-5000'. Most common landtype group is 300 series, followed by the 100 then the 400 series. Valley bottoms are moderately wide.	Engelmann Spruce, Western Redcedar, Sitka Alder, *Sphagnum sp.,* Ticklegrass, Oak-fern
2	1B	17%	First and second order, moderate gradient streams. Mainly found at elevations between 2500-5000'. Most common landtype group is 300 series, followed by the 100 then the 400 series. Valley bottoms are moderately wide.	Engelmann Spruce, Western Redcedar, Sitka Alder, *Sphagnum sp.,* Ticklegrass, Oak-fern

Group	ARU	Proportion of the KNF	Description	Vegetation
2	3B	4%	Third order, moderate gradient streams. Mainly found at elevations between 2500-4500'. Most common landtype group is the 300 series, followed by the 100 and 400 series. Valley bottoms are moderately wide.	Grand fir, Paper Birch, Western Redcedar, Western Hemlock, Sitka Alder, Fools's Huckleberry, Devil's Club,
2	4B		Characteristics of this group include 1st, 2nd, and 3rd order streams with low gradient, higher sinuosity, and wide valley bottoms.	
3	1C	7%	First and second order, low gradient streams. Commonly found at elevations between 2000-4000'. Major landtype groups are 100 and 300 series. Valley bottoms are wide.	Spruce, Sitka Alder, Thimbleberry, Reedgrass, Ladyfern,
3	3C	5%	Third order, low gradient streams. Commonly found at elevations between 2000-4500'. Major landtype groups are 100 and 300 series. Valley bottoms are wide.	Grand fir, Engelmann Spruce, Black Cottonwood, Red-osier Dogwood, Douglas Spiraea, Ticklegrass,
4	4C	6%	Fourth order, low gradient streams. Mainly found at elevations below 4000'. Major landtype groups are 100 and 300 series. Valley bottoms are wide.	Paper Birch, Paper Birch, Balsam Poplar, Scouler Willow, Bentgrass, Beaked Sedge, Reed Canarygrass, Fowl Bluegrass
4	5C	2%	Fifth order, low gradient streams. Commonly found at elevations below 3500'. Major landtype group is the 100 series. Valley bottoms are wide.	Black Cottonwood, Western Redcedar, Shrubby Cinquefoil, Reed Canarygrass, Ladyfern
4	6C	1%	Average gradient is 1%. Gradient and sinuosity were computer generated and may differ from actual measurements. Sixth order streams are large and typically occur in the lowest reaches of the watershed at elevations under 3000'. The average width of the valley bottom in ARU 6C is 355 meters.	Paper Birch, Western Larch, Engelmann Spruce, Western Redcedar, Western Hemlock, Common Snowberry
5	LT32	1%	These streams are within landtype group 325. Streams are generally low to moderate gradient and occur in fairly wide valley bottoms. Stream order is generally 3rd order or smaller.	Engelmann Spruce, White Spruce, Rocky Mountain Maple, Alder, Alder Buckthorn, Redtop, Field Horsetail

The IPNFs does not have an ARU classification and inventory at this time. Riparian information for the forest will be summarized and analyzed for the DEIS.

Planning Question - What is the historic and current condition of noxious weed species on the KIPZ and what are the trends?

Historic Condition Of Noxious Weeds

Prior to the appearance of weed species, native plants existed together in a well-established system of plant succession, growth, competition, and natural disturbances that maintained plant communities in a dynamic equilibrium. When natural disturbance occurred, native pioneer plants colonized a site, and started a string of successional stages appropriate for the site.

Noxious weeds are any exotic plant species, which may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities. Exotic species were introduced both inadvertently and intentionally, and changed the nature of many plant communities. Non-native plants were brought to the North American continent as ornamentals, food crops, forage for domestic animals or for use in rapid revegetation of a site or erosion control. Many were transported by

accident, in crop seed, or in soil of other plants, or in ships ballasts. Most introduced species never became pests. They could thrive without special care, or did not compete well with native vegetation, and remained confined to gardens, agricultural fields, or minor components of wildland vegetation. Some even became valuable crop and landscaping plants.

However, in the absence of competitors and natural enemies with which they evolved, a few exotic species spread and dominated to the detriment of native vegetation. For example, knapweed came into the United States from Eurasia in clover and alfalfa seed. Canada thistle was introduced to Canada in cropseed. Oxeye daisy was spread around the northwest in forage grass and legume seed after its introduction in the late 1800s. Houndstongue came from Eurasia in cereal seed. Some strains of leafy spurge probably came to the country in cereal seed. Intentional introduction have brought invasive weeds into the area as well. Common St. John's-wort seed was brought with English and German settlers as seed for gardens. Dalmatian toadflax came from Europe as an ornamental, as did orange hawkweed and absinth wormwood. These species then spread from their point of introduction to the inland northwest, by the same means that brought them to the country and over the road network.

Once established, these weeds spread mainly along roads and railways. They were also transported on heavy equipment, in hay, by livestock, wildlife and humans as well as other vectors. Disturbance such as roadbuilding and timber harvest created ideal conditions for the establishment of noxious weeds. These plants also invaded certain intact communities. Native plants were replaced by exotic species, often to the extent of the exotic species forming a monoculture. The structure, diversity, and function of the infested plant communities were dramatically altered.

Exotic species were able to accomplish this takeover due to several characteristics, depending on the species. Deep taproots, dense rosettes of leaves, prolific seed production, vegetative reproduction, and the ability to generally out-compete native plants for space and resources, along with the absence of natural checks and balances, afforded some exotic species a great advantage over native species. Some exotic species even exude chemicals that reduce the vigor of nearby plants, reducing their competitive ability.

Another factor that allowed noxious weeds to degrade native plant communities was a lack of effort to control these species while their numbers were low. In the absence of control measures, invasive exotic species spread and their populations increased, sometimes exponentially.

Current Condition Of Noxious Weeds

Noxious weeds have invaded and dominate many roadsides, disturbed areas, and susceptible habitats across the forest. They continue to be spread by vehicles, machinery, animals and humans. These vectors distribute weeds into native plant communities, putting them at risk for infestation. There are many areas not infested with weeds that are vulnerable to noxious weed invasion, particularly at low to mid elevations. These plant communities are likely to be overtaken by noxious weeds if introduced.

The degree and extent of infestation makes management of these species seem daunting. Indeed, eradication of many species is prohibitively expensive and time consuming. With current funding and staffing, at best the spread of these species can be contained.

Due to the aggressive nature of certain exotic plant species, they are designated noxious weed species by the states of Montana and Idaho. Noxious weeds are: "Those plant species designated as noxious weeds by the Secretary of Agriculture or by the responsible State official. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or disease and being native or new to or not common to the United States or parts thereof." (FSM 2080.5).

The Federal Noxious Weed Act of 1974 defines a federal noxious weed as of foreign origin as is new to or not widely prevalent within the United States. Federal noxious weeds are specified as aquatic weeds, parasitic weeds, or terrestrial weeds. For the purpose of weed management on federal lands, a federal

agency shall adopt any list classified as noxious by federal or state law. The states and counties have laws and ordinances for the implementation and enforcement of weed management.

In Idaho, state laws and county ordinances require that all landowners be responsible for control of noxious weeds on their lands. The IPNFs has several district-wide Noxious Weed environmental documents that provide an adaptive strategy to treat both existing and new weed infestations. Currently, the IPNFs is also a partner with county, state and other federal agencies in two Cooperative Weed Management Areas, which promote the integrated management and education on noxious weeds across jurisdictional boundaries.

The Montana County Noxious Weed Control Law was established in 1948 to protect Montana from destructive noxious weeds. Local county government has the responsibility for implementation and enforcement of weed management in Montana. The County Noxious Weed Control Act is implemented and enforced at the local county level. Each county government is required to appoint a county weed control board and develop a long-term management plan for the control of noxious weeds in their county. In 1991, the KNF signed a memorandum of understanding with Lincoln County regarding noxious weed management standards in which the KNF agreed to assist and cooperate with the weed board. The KNF is also working with Sanders and Flathead counties on noxious weed control.

Current control efforts are aimed at eradicating new invaders and containing existing infestations. Every known site occupied by a new invader species is treated and monitored. Logging equipment is cleaned before entering a sale area to reduce the potential for the introduction of weed species not yet present in a sale area. Tactics used to attempt to contain large infestations include spraying roadsides, seeding major disturbances caused by road and skidtrail building and landing piles and treating gravel pits. Biocontrols have been released for spotted knapweed, dalmatian toadflax, St. John's wort, purple loosestrife and Canada thistle. Infestations in some sites have been reduced by these measures. However, in spite of these control efforts, existing infestations continue to invade disturbed areas and intact plant communities.

Findings of the Interior Columbia River Basin Ecosystem Management Project (ICBEMP) Regarding Noxious Weeds

The ICBEMP assessment made the following findings regarding noxious weeds that apply to the KNF and IPNFs (USDA, USDI. 1999c).

Noxious weeds are spreading rapidly, and in some cases exponentially, in rangelands.

- Rangelands on the KNF have infestations of knapweed, common St John's-wort, absinth wormwood, Canada thistle, common hound's-tongue, leafy spurge, and sulfur cinquefoil. Weeds with potential to be invasive that do not have noxious designation are also common, including smooth brome, orchard grass and sweet clover. These species reduce forage value for livestock and big game.

Cheatgrass has taken over many dry shrublands, increasing soil erosion and fire frequency and reducing biodiversity and wildlife habitat. Cheatgrass and other exotic plant infestations have simplified species composition, reduced biodiversity, changed species interactions and forage availability, and reduced the system's ability to buffer against changes.

- Dry shrubland habitat is not extensive on the KNF or IPNFs. Where it is present it can be valuable winter range for big game species. For example, the "Horse Range" on the KNF, located behind the Canoe Gulch Ranger Station, provides elk and mule deer winter range. This area is infested with cheatgrass, reducing its carrying capacity. This infestation prohibits prescribed burning, which could otherwise be used to stimulate desirable forage.

Declines in plants... are due to a number of human causes including... introduction of exotic species.

- The diversity, composition, and structure of native plant communities are adversely affected by the presence of noxious weed species. Native plant species on the KNF, including sensitive and proposed threatened species, are compromised by invasive exotic species.

Noxious weeds are spreading rapidly, and in some cases exponentially, in most dry forest types.

- Dry, open, Ponderosa pine forest types on the KNF and IPNFs have infestations of knapweed, common St John's wort, meadow hawkweed, cheatgrass, Dalmatian toadflax, and sulfur cinquefoil. These weeds reduce the value of dry forest types as winter range. They are likely to persist and spread indefinitely in dry forest types without control measures. They can also create undesirable responses to measures to maintain dry forest structure and overstory species composition. For example, the removal of Douglas-fir encroachment and under burning is necessary to maintain ponderosa pine stands, but creates open conditions that are conducive to the spread of many noxious weeds.

Primary causes for decline in native herbland, woodland, grassland, and sagebrush habitats are...invasion of exotic plants.

- Exotic species are found in all of these habitats on the KNF. In many cases, they have reduced the value of wildlife and rare plant habitat.

Within riparian shrublands, there has been extensive... introduction of exotic grasses and forbs.

- These habitats are not common on the KNF. However, extensive populations of exotic species, mainly reed canary grass and common tansy, border the Kootenai River. This likely reduces the value of waterfowl habitat. These species are also common along other riparian systems where exposure is relatively open. Also, Flower Creek has an infestation of Japanese knotweed along the portion that flows through Libby.

Planning Question - What rare vegetation species and communities exist on the KIPZ and what is their condition and trend?

Plants And Communities Of Special Concern

The term "special concern" includes plant species and plant communities that are rare, endemic, disjunct, threatened or endangered throughout their range in Montana and Idaho, or in need of further research.

- The IPNFs has three threatened plant species, 66 sensitive species and 37 Category 4 (formally termed watch species) species of concern.
- The KNF has two threatened plant species, 52 sensitive species, and 89 Category 4 species of concern.

"Threatened species" are those species that are likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The threatened designation includes those species as listed or proposed for listing as threatened or endangered within the Federal Register (USFWS).

> Threatened species for both the KNF and IPNFs include water howellia, Ute ladies tresses (just the IPNFs) and Spalding's catchfly. Water howellia grows in seasonally flooded, aquatic habitats. Suitable habitat consists of small potholes, ponds, or the quiet water of abandoned river oxbows that seasonally dry up and allow for seed germination. Ute ladies tresses habitat consists of low elevation (less than 3000'), alluvial valleys with open, and mixed conifer/deciduous cottonwood, grass and shrub mosaic communities. Spalding's catchfly occurs within dry forest and grassland communities. All of these species are suspected to occur, but have not been found on either the IPNFs or KNF. Water howellia historically occurred in the northern portion of the IPNFs, but has since

been extirpated. Spalding's catchfly does occur on private land adjacent to the KNF on the Dancing Prairie (administered by The Nature Conservancy), near Eureka, Montana.

"Sensitive plants" include those species, or recognized subspecies or variety, for which the Regional Forester has determined a concern for population viability within a State, as evidenced by significant current or predicted downward trend in population or habitat. All sensitive plant species are known or suspected to occur on NFS land.

Most sensitive species occur over a variety of habitats. Riparian, aquatic, wet meadow/peatland habitats, subalpine moist cliff crevices, low to middle elevation moist rock outcrops and moist, mature coniferous forests present the greatest potential to support sensitive plant species.

"Category 4 species of concern" are considered to be secure at the global, regional and state levels, but may be at risk at the forest level.

Planning Question - What is the productivity of the soil and is it being maintained?

Soil Productivity

Physical Aspects of Soil Quality

Soil quality is defined as the capacity of a specific soil to function within its surroundings, support plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation (FSM 2500-99-1).

- Soil quality is central to modern forest management and is rooted in land ethic and law.
- Soil productivity is a requirement for sustainable forests.
- Soil quality standards are key to long-term soil productivity and sustainability.

Most of the affects on long-term soil productivity are caused by physical impacts. These generally include compaction, displacement, rutting, surface erosion, and soil mass movement. Other less obvious physical impacts, but still very closely related, are severe-burning and loss of surface organic matter. For the latter two, the initial impact is physical but the long-term impact is related more to chemical and biological (loss of nutrients as a result of the loss of organics).

Compaction, by far, is the most common physical impact. Compaction reduces the macropore porosity, which reduces soil aeration, reduces soil infiltration rates, reduces soil permeability, modifies or destroys soil structure, changes water supply to roots, and increases mechanical impedance of soils to root development. All these factors affect plant growth by reducing plant vigor because there is less available water and less nutrient and gas exchange. The roots can be short, deformed, stubby, and shallow. Susceptibility to disease will be increased as well as blow-down potential. Seed establishment will be reduced. Erosion potential is increased by compaction, as the soil is less able to absorb and transmit water. Also, the soil will freeze earlier and stay frozen longer, which will contribute to overland flow.

Displacement is the physical removal of soil material, which is generally the topsoil, which contains most of the soil nutrients. Rutting is the destruction of soil structure, which negatively affects infiltration and permeability. Soil mass movement is the bulk movement of topsoil and subsoil from one place on the landscape to another. Applying Soil and Water Conservation Practices will help to minimize any impacts.

Severely-burned soil can result from a high severity fire where all the surface organics have been removed as well as the soil organics, which result in negative physical, chemical, and biological changes. Loss of surface organic matter can cause nutrient and carbon cycle deficits, which negatively affect physical, chemical, and biological soil conditions (Dumroese et al. 2002, pages 201 - 210; Powers et al. 1982, pages 1 - 33).

The IPNFs Forest Plan created standards that are intended to supplement, not replace, national and regional policies, standards, and guidelines found in Forest Service manuals and handbooks and the Northern Regional Guide. The 1987 IPNFs Forest Plan directs that soil disturbing management activities will strive to maintain at least 80% of an activity area in an acceptable condition for vegetative production. Unacceptable production is where the soil is detrimentally compacted, displaced, puddled, or severely-burned. The KNF Forest Plan states that a standard will be established for those projects where the use of heavy equipment is required. The standard should establish how much of the project area will be allocated to skid trails, landings, temporary roads or similar areas of concentrated equipment use. The standard shall minimize the area allocated to those uses to the extent practical.

The latest version of the Soil Quality Standards is found in the Forest Service Manual (FSM 2500 Watershed and Air Management, R-1 Supplement No. 2500-99-1, Effective November 12, 1999, Soil Management Chapter, 2554 Soil Quality Monitoring). These standards include Detrimental Soil Disturbance, Organic Matter Guidelines, and Monitoring Methods. Detrimental Soil Disturbance includes compaction, rutting, displacement, severely-burned soil, surface erosion, and soil mass movement. Monitoring Methods includes Aerial Extent Sampling and Soil Sampling Techniques. This manual direction requires soil disturbance activities to maintain at least 85% or more of an activity area in a non-detrimental status. Permanent roads are not included.

The 1987 Forest Plan and Forest Service Manual direction have been adequate for the maintenance and protection of soil quality and do not present a significant "need for change".

Nutrient Aspects of Soil Quality

The 1987 IPNFs Forest Plan states that projects should strive to maintain sufficient large woody debris; and do a project analysis in the event of whole tree logging to make provision for the maintenance of sufficient nutrient capital. The 1987 KNF Forest Plan makes no reference to maintenance of nutrient capital. Organic Matter Guidelines are referenced to Graham et al. (1994). Applying the standards contained in Graham et al. (1994) related to coarse woody debris maintains an adequate long-term nutrient supply.

Research by the Intermountain Forest Tree Nutrition Cooperative (IFTNC) is showing that potassium (K) is inherently very low within portions of the Precambrian meta-sedimentary rocks known as the Belt Super-group (Garrison et al. 1998, IFTNC Supplemental Report, pages 7-9). Approximately 80% of the KIPZ is located on this Belt Super-group bedrock material. Research indicates that 20-30 % of this area may be inherently low in K (Moore et al. unpublished, pages 13 and 38).

Potassium that is available to plants is derived almost exclusively from the weathering of parent material. Once K is removed from the site, the loss is long-term because the weathering process is so slow (Garrison et al. IFTNC 1998 Supplemental Report, pages 2-7). Most K is stored in the needles, small limbs, and branches of plants (Pang et al. 1987). The fine biomass is the major source for recycling this limited nutrient. Cole et al. (1967) found that in a forested Douglas-fir ecosystem on glacial soils, about 45% of the total K pool was being held in trees. The remainder is held in understory vegetation and the forest floor.

Management activities that remove K from inherently low K sites can cause trees to fall below critical foliar nutrient levels (Moore et al. unpublished, pages 17 and 28). This situation can have a profound effect on forest health conditions, particularly armillaria root diseases, insect attacks, and possibly tree growth (Garrison-Johnson et al. 2001, Draft Manuscript, page 4; Garrison et al. 1998, Supplemental Report, page 8). Specifically, K nutrition has been shown to significantly affect Douglas-fir root biochemistry, including phenolic concentrations (Shaw et al. 1998, page 1571). Douglas-fir trees that produce low resin levels (phenolic compounds) are more likely to be successfully attacked and killed by Douglas-fir beetles. Also trees with low phenolic/sugar ratios are susceptible to armillaria root diseases (Shore et al. 1999 and IFTNC 1992).

The 1987 Forest Plans do not provide direction for management of loss to potassium on soils with inherently low potassium. Standards or guidelines may be needed to compensate for the potential loss in potassium on these soils.

What are the implications of continuing under current management direction for Vegetation?

Based on historic and current condition and trends, effective fire suppression since the 1930s, the introduction of an exotic disease (white pine blister rust), and human timber harvest and road-building patterns are the major causes of changes from historical disturbance and successional patterns. These causes work synergistically and create changes in forest species composition, structure, and function; which in turn can lead to further changes in disturbance and successional processes.

Some major changes as a result of past management, fire suppression, and implementation of the 1987 Forest Plans include:

- In warm and dry habitats, there has been a shift from ponderosa pine and larch to Douglas-fir.
- In moist habitats, there has been a shift from white pine and larch to Douglas-fir, grand fir, and hemlock.
- There has been a decrease in the late-successional stage forests.
- In general, patch sizes (uninterrupted blocks of forest) and interior habitat have decreased and fragmentation of the landscape has increased.
- There has been an increase in shade-tolerant, drought-intolerant tree species.

Shifts in successional and disturbance processes towards those that favor more shade-tolerant, drought-intolerant tree species mean that stress on forests will be greater during periods of drought that occur periodically in these ecosystems. That leads, in the short-run, to increased forest insect and pathogen activity and an increase in their importance as agents of change, as compared to historic conditions. Because insects and pathogens generally accelerate succession, this creates a positive feedback loop with accelerating transitions to even more shade-tolerant species, which in turn means further accelerating insect and pathogen activity.

Frequent insect and disease outbreaks create high levels of dead woody fuels, especially in the fine, small and medium size classes. This insect and disease activity also results in a multi-story forest canopy structure with shade-tolerant trees of all sizes growing together. This canopy structure provides continuous tree crown from near ground level to the top of the canopy. These "live fuel ladders" raise the probability of any fire becoming a crown fire. This combination of increasing dead fuel loads and hazardous forest canopy structures (live fuel ladders) leads to a growing risk of large and severe stand replacing wildfires. In warm and dry VRUs, fuel loadings have increased due to fire suppression, which increases the risk of more severe fires. In the long-run, this successional/disturbance regime makes it likely that growing fire risk will overcome human defenses with particularly large and severe burns during times of severe fire weather. This is the same finding that resulted from the ICBEMP.

The current trends in changed vegetation patterns result in declining habitat for wildlife species that depend upon large patch size (especially large patches of mature/old forest), large wood, large snags, or some other particular attribute of early successional vegetation. However, generalist species and edge species may generally benefit from many of these vegetation changes. The shift from pulse to press disturbance departs from conditions under which most native fish species evolved and also provides fewer watersheds capable of supplying habitat conditions historically associated with large patches of older forests. At the point where growing fire risk actually results in very large and severe wildfires, this will pose a different set of risks. Very large and severe fires pose risks to rare plant, animal, and fish communities; to soil productive potential; and to some aquatic processes.

Revision Topic – Fire Risk

Need for Change

Since the Forest Plans were approved in 1987, more homes and other structures have been built near and around national forests. Should fires occur, these structures within the wildland-urban interface are very vulnerable. As people, homes, and structures continue to occupy the wildland-urban interface and as hazard fuels continue to accumulate, a high risk and volatile situation needs to be addressed. There is a need for change in the 1987 Forest Plans to better address the restoration of fire-adapted ecosystems (refer to the Vegetation section of this document) and the reduction of risk to communities and the environment. The 1987 Forest Plans do not adequately address this issue.

Since the 1987 Forest Plans were written, much has been learned about the role fire plays as a disturbance process in western forest ecosystems. Fire suppression has changed the vegetation patterns, structure, and composition of forests. Therefore, the role that fire plays in these ecosystems has also been altered. The altered forest composition, when coupled with the additional structures and communities in the urban interface results in changed conditions that need to be addressed in the revision of the Forest Plans.

National and Regional strategies describe fire risk conditions in terms of condition class and fire regime. The 1987 Forest Plans did not address fire management from this perspective. Therefore, there is a need to update the 1987 Forest Plans so they reflect national fire management strategies and policies completed in recent years. These strategies include:

- The 1995 Federal Wildland Fire Management Policy and Program Review: This review directs the integration of fire into land management planning, working with landowners and stakeholders, and directs landscape level analysis (USDA/USDI, 1995c).
- National Fire Plan (2000): The documents that make up the National Fire Plan (NFP) direct that Fire Management Plans are more closely linked to Forest Plan direction.
- Region 1 and Region 4 Fire Planning Framework (2000): This provides fire management direction for Forest Plan Revisions that will help meet NEPA compliance in implementing wildland fire use, provides planning consistency across geographic areas, and other plan revision efficiencies (USDA 2000d).
- 10-Year Comprehensive Strategy (2001): This strategy reflects views of a broad cross-section of governmental and non-governmental stakeholders. The strategy addresses a comprehensive approach to the management of wildland fire, hazardous fuels, and ecosystem restoration on Federal and adjacent State, tribal, and private forest and range in the United States (USDA 2001a).

Laws and Regulations

In recent years, there have been several major reviews of federal wildand fire management, resulting in policy and direction. The 1995 Federal Wildland Fire Management Policy and Program Review (USDA and USDI 1995c) recognized that fire was part of a larger problem, a symptom of altered fire regimes creating instability in ecosystems, setting the ecosystems up for large, catastrophic fires. It documented the need for landscape-level resource management, the integration of fire into land management planning and implementation, and the involvement of all affected landowners and stakeholders.

The Cerro Grande Fire in 2000 was an escaped prescribed burn that spread to Los Alamos, NM. Resulting public concern caused a review of fire management policy and program in 2000. The findings of this review strengthened the 1995 Federal Fire Policy and Program Review (USDA and USDI 1995c). These program reviews call for using "…the full range of fire management activities…to achieve ecosystem sustainability", including fire use. The policy review stresses the need to complete or revise

fire management plans that are "…more effectively and directly" integrated "with other natural resource goals".

Wildland fires in 2000 burned over 7 million acres of land, mostly in the western States. The total acreage burned was three times the 10-year average. On September 8, 2000, the Secretaries of Interior and Agriculture delivered a joint report to the President entitled "Managing the Impact of Wildfires on Communities and the Environment: A Report to the President in response to the Wildfires of 2000" (USDA/USDI 2000b). The President asked for recommendations as to how best to respond to the effects of the severe fires, how to reduce the effects of wildland fire on rural communities, and how to ensure sufficient firefighting resources in the future.

A "National Fire Plan" (NFP) was prepared, and implementation has begun, to address the recommendations accepted by the President. The NFP sets forth goals and objectives to address:

- Agency firefighting capacity
- Restoration of damaged watersheds
- Hazardous fuels reduction
- Economic assistance to communities
- Reduction of fire hazards and restoration of landscapes in communities

Forest Service Strategic Plan

The goals and objectives of the USDA Forest Service Strategic Plan (Revision 2000) guide future agency actions (USDA 2000a).

Goal 1 "Ecosystem Health" states: Promote ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grasslands, and watersheds."

Objective 1.c states: "Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from fires, insects and diseases, and invasive species." Some of the strategies to achieve this objective are:

- Focus agency resources to reduce fire hazards, especially in urban/wildland interface areas.
- Prepare fire management plans tiered to land and resource management plans.
- Increase wildland fire protection capabilities to provide for firefighter and public safety.

The goals and objectives of the NFP are broadly addressed in the Forest Service Strategic Plan (Revision 2000). A shift in emphasis and supporting funding is occurring and has implications for changing the emphasis in the strategic plan and for how quickly some of the objectives will be achieved. As the NFP is implemented, the goals and objectives in the Forest Service Strategic Plan may need to be adjusted.

The Forest Plans and Monitoring and Evaluation

The Monitoring and Evaluation of the two Forest Plans do not provide for monitoring of fire management and risk. In addition, current direction in the Forest Plans does not provide for management on a Fire Management Unit (FMU). Rather, current direction for fire is found within standards and guidelines for management areas. The management areas for the 1987 Forest Plans were small and lacked the reference to fire management needs.

Planning Questions for Fire Risk

Planning questions have been developed to provide context to the fire risk revision topic. These questions are followed by a description of the historic and current condition and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.

Planning Question – What are the historic and current fire risk conditions on the KIPZ and what are the trends?

Historic and Current Condition of Fire Risk

Earth has been and still is a fire environment. Wildfire has been present as long as there has been plant biomass ignited by lightning, at least 350 million years (Cope and Chaloner 1985). Evidence of wildland fires extends back to the Paleozoic Era, hundreds of thousands of years before the present. Wildfire has been a regular occurrence since the Mesozoic, when flowering plants first developed (Agee 1993). Fire intensity and frequency in the Rocky Mountains has occurred with present-day predictability within vegetative groupings since the beginning of the current climatic period (+/- 2500 years per Chatters and Leavell 1994).

The success of fire suppression efforts and resource management activities over the last 100 years has had a large influence on the structure and composition of forest and rangeland fuel conditions. The function and process of ecological systems has changed. Fire suppression and some management activities have altered fuel loadings. Population and development densities continue to increase within forested environments. The risk and severity of fires continues to grow. The ecological changes resulting from fire suppression are clearly defined in the Terrestrial Sustainability section. On a large-scale, the ICBEMP shows that if we continue with current management, ecological integrity is projected to decline. Additionally, the environment has a high likelihood of adversely affecting human assets through catastrophic wildfires. Some potential effects of continuing with current management would be an increase in wildfire and smoke occurrence and an increase in vegetation most susceptible to insects and diseases (USDA 1997a).

Scientific findings from the ICBEMP highlight fire as a major ecosystem process. Specific findings from the ICBEMP show that, "In recent times, the acreage with lethal fire regimes has more than doubled. This poses a significant threat to ecological integrity, water quality, species recovery, and homes in rural areas. Fire severity and frequency have changed across the landscape. Before Euro-American settlement, most fires in low and mid elevation forests were nonlethal. Forests and rangelands benefited from these frequent, surface fires, which thinned vegetation and favored growth of fire-tolerant trees. Lethal, or stand-replacing fires played a lesser role on these landscapes. Lethal or stand-replacing fires currently predominate. Lethal fire regimes now exceed nonlethal fire regimes in forested areas. Fire exclusion, livestock grazing, timber harvest, and exotic plant introduction have contributed to these changes," (USDA 1997, p. 13).

Many voices were raised towards the latter part of the 19th century about the extent and problem of wildland fires in the Northwest (Mark Twain in Glickstein 1987, John Muir in Weaver 1974, Leiberg 1897). Modern forest fire suppression began in the West shortly after the immense and destructive fires of 1902. These fires formed one of the ten largest and most destructive fires in the history of this nation (Davis 1959). The Twenty-Five Percent Fund Act of 1908 authorized the Forest Service to make "advances of money" to chiefs of field parties for fighting forest fires in emergency cases.

The great fires of 1910 started on August 10th in the Bitterroot Range and ultimately burned over 3 million acres in Idaho and Montana, and resulted in the deaths of 85 people. Following these fires, timber industry recognized the risk to the resources as an impact on the economy. The Weeks Act of 1911 authorized cooperative fire protection and allowed the purchase of land necessary to protect navigable streams from fire. Many local county fire organizations were formed following the passage of the Weeks Act.

Slash burning was a source of many wildfires and destruction of property and resources following the 1910 fires and into the 1920s. The Clarke-McNary Act of 1924 increased federal aid to states for fire control. In the twenties and thirties, federal, state, and private protection agencies developed a system of

over 3,000 fire lookouts in the Northwest. The nearest lookout fireman usually headed out alone after a fire was spotted, sometimes in the dark of night, returning days later back to the mountain perch. The 10:00 AM Policy was adopted in 1935. This policy directed the prevention of all human-caused fires and the containment of any fire started by 10:00 AM the next day. Weaver in 1943 documented the increasing risk to disease and damage for vegetation in low severity fire regimes and undesirable changes in vegetation composition resulting from fire suppression (Weaver, 1943).

Fire management costs as well as risks to the resources and communities were increasing exponentially in the 1960s. Managers were beginning to see ecological benefits from natural and prescribed fire. The park service changed its fire policy in 1968 to allow for a more natural role of fire. The Forest Service 10-Acre Policy was added in 1971. This set a pre-suppression objective of containing all fires within 10 acres. In 1977, a new policy was adopted that changed both 10:00 AM and 10-Acre policies. Fire by prescription became the rule and fire suppression became fire management.

Smoke became a dominant issue in the 1970s. The Clean Air Act of 1977 had the greatest effect on smoke management, which was truly felt in the 1980s when smoke management plans were revised.

Table 1-4 below displays some general trends in fire on the KIPZ. For example, there is a sharp decline in acres of large fires from 1920 through the 1950s, most likely due to fire suppression. However, in recent decades, the acres of large fires are increasing or are variable, which may be due to the buildup of fuels resulting from successful fire suppression and the increased risk and severity of fires.

Table 1-4: Summary of Large Fires on the KNF and IPNFs.

Summary of IPNFs Fires	
Decade	Acres of large Fires
1910-1919	1,150,000*
1920-1929	599,000*
1930-1939	146,000*
1940-1949	14,100*
1950-1959	4,190*
1960-1969	78,400*
1970-1979	10,700
1980-1989	4,840
1990-1999	6,810
Summary of KNF Fires	
Decade	Acres of Large Fires
1910-1919	426,000
1920-1929	96,220
1930-1939	72,800
1940-1949	2,020
1950-1959	3,990
1960-1969	3,620
1970-1979	13,100
1980-1989	31,800
1990-1999	86,000

Planning Question – Where and when would we (a) allow certain types of fire; and (b) always suppress fires on the KIPZ?

A fire hazard/risk assessment will be completed to address this question. Steps in this process will be:

- Identify land by condition class or risk category;
- Discuss the resources to be protected from catastrophic wildland fire including human communities, watersheds, threatened and endangered species habitats; and
- Establish landscape goals to achieve sustainable ecosystems.

Condition class is defined in terms of departure from the historic fire regime, as determined by the number of missed fire return intervals with respect to (1) the historic fire return interval, and (2) the current structure and composition of the system resulting from alterations to the disturbance regime (*from* Protecting People and Sustaining Resources in Fire-Adapted Ecosystems (USDA 2000f). Historic and current fire regimes will be defined by referencing vegetative type or Vegetation Response Unit (VRUs) descriptions and characterizations. This will provide a description of where and how much current disturbance and vegetative conditions have deviated from the historic range of variability (HRV).

Based on the fire hazard and risk assessment, FMUs will be delineated. The concept of delineating FMUs to describe the standards that fire may be used or restricted under will enhance the use of fire to provide a workable area on the landscape for wildland fire and prescribed fire. This concept is outlined in the most recent Fire Policy Review (USDA 1995c). Implementation procedures will identify and interpret parameters for fire intensity, size, duration, seasonal constraints, and risk assessment for each FMU. Cooperating with state and county efforts will be very important.

Management objectives and strategies or prescriptions for wildland fire and prescribed fire can be described (using current terminology) allowing fire use for ecological, hazard fuels reduction, protection and enhancement of wildland urban interface areas, wildlife and other resource needs within designated and delineated FMUs. Sufficient analysis for each FMU will form a basis from which a framework of Appropriate Management Response strategies can be developed.

These FMU decisions can provide land managers and fire planners the guidance and NEPA required to develop and implement Fire Management Plans (FMP). With the development of FMPs, the Forest Plans direction for FMUs can be translated into on-the-ground-actions. Tactical decisions are described in FMPs and implementation procedures will identify and interpret parameters for fire intensity, size, duration, seasonal constraints, and risk assessment for each FMU. Programmatic NEPA decisions needed to implement FMPs will be made during the Forest Plan Revision process.

What are the implications of continuing under current management direction for Fire Risk?

Under the 1987 Forest Plans, each Management Area (MA) lists standards for fire, which includes both prescribed fire and wildfire. These standards are still relevant even with the new, standard terminology now in use. Existing MA's developed during the 1980's produced small, impractical areas for wildland fire use and for fire management prescription writing. Strategic decisions developed during the Forest Plan Revision should provide general fire management direction.

The MA's in the 1987 Forest Plans have made integrated fire management difficult to implement. The 1987 Forest Plans have not provided sufficient analysis and, therefore, have not adequately authorized wildland fire use. Because of this, the only management choice available with an unwanted fire is to respond with suppression tactics.

Revision Topic - Timber Production

Need for Change

The 1987 Forest Plans established allowable sale quantities (ASQ) as the maximum level of timber that could be harvested. Timber production levels have been well below the ASQ on both the KNF and IPNFs. While timber harvest levels have not exceeded the maximums established in the ASQ, they have also not met expectations for management and output levels. Even though ASQ is the maximum harvest level, there was an expectation by the public that this level was achievable and predicted. The analysis conducted for the Forest Plan used this level of harvest in estimating affects from timber management on other resources and the impact to local jobs and income. With the reduced timber harvest level, there is a need to reanalyze timber harvest levels and estimate the effects on other resources and the local communities.

The management direction in the 1987 Forest Plans emphasized the production of timber, with the majority of management areas allowing or promoting timber management. In the 1990s, the Forest Service began to shift its focus and mission towards ecosystem management and ecological sustainability. This change in policy and direction resulted in a decreased emphasis on commercial timber production and an increased emphasis on timber production as a tool for restoration or as a means to address other resource requirements or needs. However, budget allocation and targets remain largely tied to commercial timber production. There is a need to reanalyze timber harvest levels and revise direction to address this change in management.

In addition, evaluation of timber suitability is required to be reviewed every 10-15 years (36 CFR 219.14). Since the adoption of the 1987 Forest Plans, many changes to timber suitability have occurred, including changed Forest Service handbook direction (FSH 2409.13).

Laws and Regulations

The National Forest Management Act (NFMA) of 1976 (16 U.S.C. 472a) sets forth the requirements for Land and Resource Management Plans (LRMP) for the NFS. The 1982 Planning Regulations associated with NFMA (36 CFR 219) require the identification of areas suitable and available for timber harvest (36 CFR 219.14) and the Allowable Sale Quantity (ASQ) from those lands (36 CFR 219.16).

Forest Service Strategic Plan

The goals and objectives of the USDA Forest Service Strategic Plan (Revision 2000, USDA 20)0a) guide future agency actions.

Goal 2 "Multiple Benefits to People" states: Provide a variety of uses, values, products and services for present and future generations by managing within the capability of sustainable ecosystems."

> *Objective 2.c states:* "Improve the capability of the Nation's forest and grasslands to provide desired sustainable levels of uses, values, products, and services." The measure of this objective is the trends in the quantity or value of selected goods and services provided from the Nation's forests and grasslands.

The Forest Plans and Monitoring and Evaluation

The Monitoring and Evaluation (M&E) of the Forest Plans has found that levels of timber volume sold have declined substantially over the past 14 years of implementation. The timber sale levels have been well below those projected in both Plans.

The *IPNFs Forest Plan* projected a total maximum timber sell volume of 2,800 million board feet (mmbf), or 280 mmbf annually in the first decade. The monitoring plan indicates the threshold of concern for this item is reached when accomplishments fall below 75% of the desired volume and acres. Timber sell volumes have decreased from 246.4 mmbf in 1988 to 40.7 mmbf in 2001. The cumulative 14-year average for timber sold volume was 56% of Forest Plan projected output levels. This is well below the 75% change threshold, indicating a need to address this item during Forest Plan Revision.

The *KNF Forest Plan* projected a total maximum timber sell volume for the decade from suitable management areas at 2,270 mmbf, which is an average of 227 mmbf per year. In addition, timber sell volume from unsuitable management areas was estimated at 60 mmbf, averaging 6 mmbf per year. M&E Reports indicate that sell volumes have declined from 200 mmbf per year to about 50 mmbf per year between fiscal years 1988 and 2001. The average annual amount sold has been 102 mmbf from suitable lands and 1.7 mmbf from unsuitable lands. The 10-year, 1997 M&E Report for the KNF states "timber sale volumes and acres of timber sold for harvest have declined substantially. Revision of the Forest Plan will provide the opportunity to assess appropriate levels of harvest volume and acreage including review of the land base designated as suitable for timber management. It is also very likely that new yield tables will need to be established as silvicultural prescriptions and management activities are adapted to meet emerging direction".

Planning Questions for Timber Production

Planning questions have been developed to provide context to the timber production revision topic. These questions are followed by a description of the historic and current condition and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.

What areas are suitable for providing for wood fiber production? What is the historic and current demand for timber production from the KNF and IPNFs? What are the historic and current timber supply levels and what are the trends?

Historic and Current Condition of Wood Fiber Production

Timber Suitability

The 1987 Forest Plans determined that 1,584,000 acres on the IPNFs and 1,263,000 acres on the KNF were suitable for timber management. Suitable timberlands are the land base for determining ASQ and vegetation management for timber production. Timber suitability was determined through the use of resource data and computer models. Handbook (FSH 2409.13) and planning regulations (36 CFR 219.14) define the process for identifying suitable timberlands. Table 1-5 summarizes the classification of lands for timber suitability under the 1987 Forest Plans.

Table 1-5. Current Timber Suitability Classification

Suitability Category	IPNFs (Acres)	KNF (Acres)
Total NFS lands	2,478,477	2,245,000
Not Capable or Non-forested	-161,690	-373,000
Potential for Irreversible Soil and Watershed Damage	0	-49,000
No Assurance of Adequate Restocking	-267,263	0
Withdrawn from Timber Production	-50,972	-35,000
Tentatively Suitable for Timber Production	1,998,552	1,788,000
Lands not cost efficient or where multiple-use objectives preclude timber production	-414,389	-525,000
Suitable for Timber Production	1,584,163	1,263,000

The final determination of lands suitable for timber production is based on management area direction. This management area direction may be revised, causing a change in timber suitability designation. In addition, resource data and technology for analyzing timber suitability has improved since analysis was completed for the 1987 Forest Plans. Timber suitability will be re-analyzed as part of the Forest Plan Revision process, using current resource data and Geographical Inventory System (GIS) to identify the criteria shown in table 1-5. This analysis will be included in the DEIS.

Timber Demand

The demand for timber production was analyzed for the 1987 Forest Plans. On the IPNFs, a range for timber demand was estimated to be 190 - 253 mmbf/year in 1990. On the KNF, a range for timber demand was estimated at 178 – 224 for decade 1 (1987 – 1996) and 192 – 224 for decade 2 (1997 – 2006).

Many conditions affecting timber demand have changed since the 1987 Forest Plans were developed. Timber harvest from private, state, and NFS lands has declined; imports of wood products have increased; and technology for manufacture of wood products and mill capacity has changed. In addition, with an increased concern on managing for forest health, there is the potential to increase the supply of small-diameter stumpage from NFS lands. Because of these changed conditions and the need to understand market conditions for small-diameter wood products, the demand for wood fiber production will be determined as part of the analysis for the DEIS.

To determine demand, a two-step process will be used:

1. The Timber Assessment Market Model (TAMM) will be used to determine price and demand at a regional level. TAMM is a spatial model of the solid wood and timber inventory elements of the U.S. forest products sector and of softwood lumber and oriented strand board (OSB) production in Canada. It provides annual projections of volumes and prices in the solid wood products and sawtimber stumpage markets and was used in the Fifth Resources Planning Act (RPA) Timber Assessment.
2. Complete an assessment of (1) current industry capacity and capability and (2) potential future capacity and capability of industry. Capacity is the maximum amount of timber that can be utilized and processed. Capability is an analysis of the ability to profitably process materials of various sizes. Assessment of future capacity and capability would explore the potential for expansion and changes in state-of-the-art technology to enable processing of small-diameter wood products (i.e., 7-10” diameter).

Analysis of current and future demand will enable each forest to forecast the feasibility of the sale of wood products, including small diameter products, at various supply levels. This analysis will also be used to better understand the effects of the national forests' timber supply on timber industry and local communities.

Timber Supply

Before the KNF and IPNFs existed, timber was harvested here to meet the needs of the people living in the area. Figures 1-23 and 1-24 display the total volume of timber cut and sold on the KNF and IPNFs from 1961 to 2001. Like many other national forests, timber harvest on the two forests greatly increased in the 1960s to meet the demands of a rapidly growing economy.

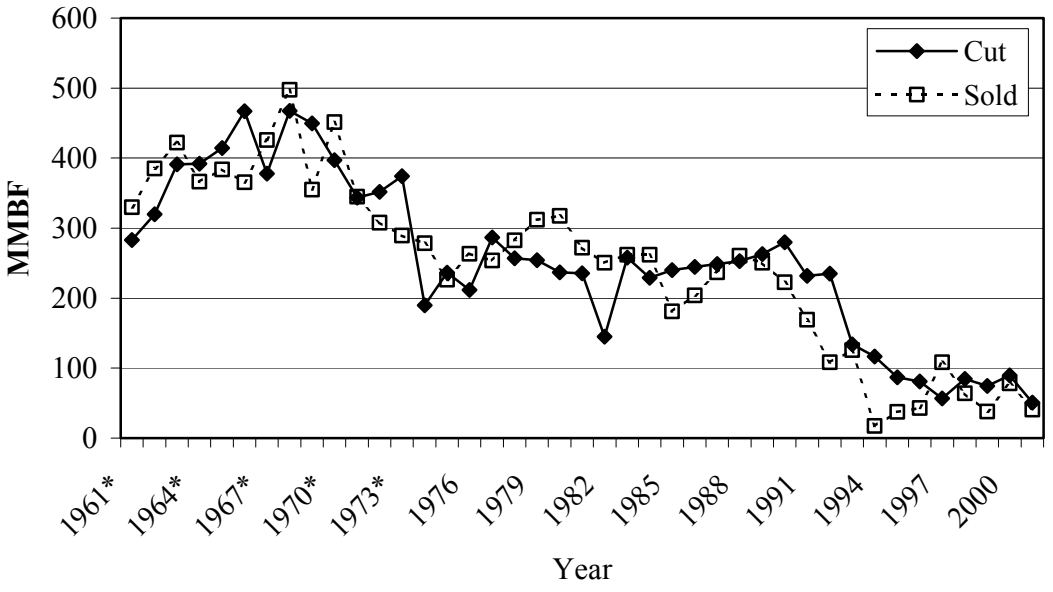
The 1987 IPNFs Forest Plan set the ASQ at 2,800 mmbf for the first decade, or 280 mmbf annually. This is based on a suitable timberland base of 1,584,163 acres. The ASQ is predicted to increase to 350 mmbf for the second decade.

The 1987 KNF Forest Plan set the ASQ at 2,270 mmbf for the first decade, or 227 mmbf annually. This is based on a suitable timberland base of 1,263,000 acres. In November, 1995, the Chief of the Forest Service issued a decision on a Forest Plan appeal related to a technical error in the calculation of the Kootenai's ASQ. The issue centered on how timber age classes were cataloged in the inventory information used to calculate ASQ. A description of the problem is in the Kootenai's FY92 Monitoring Report. The decision required that the Forest is not to exceed a sell volume of 150 mmbf per year until the Forest Plan is either amended or revised.

During the 14 years of implementing the Forest Plan, actual timber harvest levels were 2,038 mmbf on the IPNFs and 1,838 mmbf on the KNF. Timber sell volumes on the IPNFs decreased from 261 mmbf in 1988 to 40.7 mmbf in 2001. On the KNF, timber sell volume has decreased over the life of the plan, from a high of 204 mmbf in 1992 to a low of 41 mmbf in 2000.

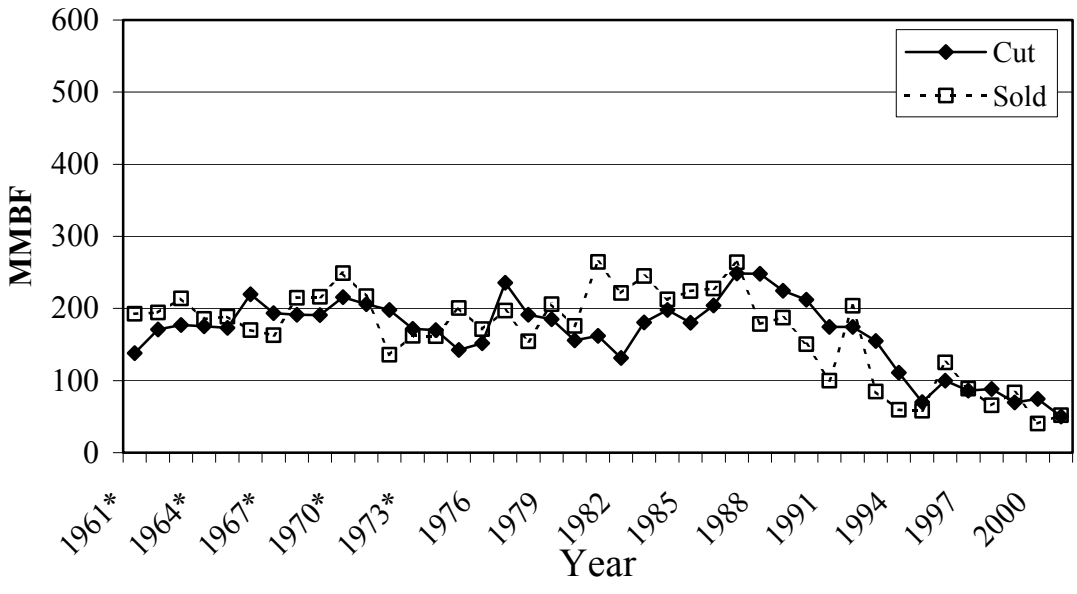
The timber production levels have been well below those projected in the 1987 Forest Plans. Many factors have influenced the timber program. On the KNF, the USFWS amended the biological opinions for grizzly bear recovery in July 1995 and changed how recovery processes would take place on the KNF. The INFS Decision of July 1995 resulted in additional streamside protection measures on both the KNF and IPNFs. In general, it has become more difficult to plan and execute sales due to public controversy, protection of threatened and endangered species habitat, inability to enter inventoried roadless areas, water quality concerns, and reduction in forest budgets (see the KNF and IPNFs fiscal year 2001 M&E Reports, USDA 2002b and 2002c).

Figure 1-23. Volume Cut and Sold on the IPNFs (in MMBF)



Source: Region 1 Timber Sale Program Statistics, 12/17/2001

Figure 1-24. Volume Cut and Sold on the KNF (in MMBF)



Source: Region 1 Timber Sale Program Statistics, 12/17/2001

Timber production will be analyzed in the Forest Plan Revision. Long-term sustained yield (LTSY) and the quantity of timber volume to be offered from suitable lands will be estimated using a timber harvest-scheduling model (Spectrum). In addition, timber harvest for purposes other than wood fiber production (i.e., from tentatively suitable or unregulated lands) will also be analyzed and volumes estimated. This analysis will be included in the DEIS.

What are the implications of continuing under current management direction for Timber Production?

Based on historic and current condition and trends, timber harvest levels will continue to be well below the ASQ and fall short of expectations. Direction to maximize growth and yield through short rotations, a high use of regeneration harvest, and intensive timber management is unattainable because of other resource management constraints and public values. The 1987 Forest Plans emphasize timber production, overlooking ecosystem management and principles of ecological sustainability. Suitable timberlands will continue to be adjusted to make corrections to the 1987 Forest Plans. Little will be known regarding the market for small-diameter logs, limiting the forests' ability to manage for improved forest health through commercial timber sales.

Revision Topic – Wildlife

Need for Change

At the time the KNF and IPNFs Forest Plans were written (circa 1987), the emphasis was on developing a commodity strategy while minimizing impacts to wildlife habitats and populations. Minimum standards were developed for maintaining wildlife habitats, with the assumption that these would then be capable of supporting viable populations of all native and desired non-native species. Based on Forest Plan monitoring, the 1987 Forest Plan direction may not be adequate to provide sufficient quantities and quality of suitable habitat to maintain viable populations for some species, such as those requiring snags.

The 1987 Forest Plans separated NFS lands into various management areas (MA's) with associated standards and goals for each MA. MA's were designated according to management goals, resource potential, and limitations. In many cases MA's were designated and given standards that have been determined impossible to meet based on layout and/or size of existing management areas. Two examples of this are: 1) a narrow band of land designated for wildlife management between two areas designated for timber management and 2) a narrow timbered stand designated as suitable timber land surrounded by open grassland habitats designated as unsuitable timberland

The Forest Plans were developed, in part, to address those species designated as threatened, endangered or sensitive at that time. The U.S Fish and Wildlife Service designates these species as threatened or endangered. Since the release of the two 1987 Forest Plans, peregrine falcon have been de-listed, bald eagle are proposed for de-listing, and Canada lynx have been added to the list. In addition, recovery area boundaries for the grizzly bear and gray wolf were expanded, and grizzly bear management continues to evolve with the development of the proposed access amendment. The Regional Forester administratively determines sensitive species. The sensitive species list was amended in 1999 with the addition of eight species and removal of one. In general these changes were conducted to expedite recovery of listed threatened, endangered and sensitive species, however, they had some major impacts on other resources such as timber output and access.

Forest Plans designated Management Indicator Species (MIS) (see Table 1-6 under Planning Questions in this section), based on their habitat preferences for feeding and reproduction, to act as a barometer of change for that particular habitat. MIS were species that could be easily monitored and were susceptible to changes resulting from management activities. Implementation of the Forest Plans has identified that some of those species designated as MIS are not easily monitored and may not adequately represent species dependent on that particular habitat.

The 1987 Forest Plans contained monitoring and evaluation criteria that would provide the decision maker and the public with information on the progress and results of implementing the Forest Plan. Monitoring identified that data was inconclusive for some of the items in the monitoring plans and no definitive results could be determined. One of the monitoring items in the KNF Forest Plan was to identify emerging issues that were not included in the original Forest Plans but would need to be considered in plan revision. Items such as big game security, elk vulnerability, viability, corridors, and access management are just a few of the items that will need to be further addressed in Forest Plan Revision. Monitoring plans will also need to be changed in conjunction with changes in Forest Plans.

Fifteen years of implementing the Forest Plans has also identified that there is often a need for project specific amendments because one or more Forest Plan standards could not be met. These amendments are generally for exceeding open road density standards, but also include opening sizes, movement corridors, cover, or snags. The majority of the amendments on the KNF had to do with meeting ORD in big game summer range (MA 12). In many cases meeting ORD standards in MA 12 could not be achieved without closing all roads, including main collector roads and loop roads which have been traditionally used for

decades. These were due in part to the size of MA's but also may be an indication of an un-realistic standard.

Use of the wildlife resources, from hunting to wildlife viewing has increased markedly in the past two decades. Wildlife viewing, hunting, and fishing accounted for 16% of the total income from NFS lands in 1999 and this amount is projected to increase to 16.4% in 2006 (USDA 2000a). Although these figures are based on National statistics, use of these resources is very high on the KIPZ and the amount of associated income may be even higher. One of the monitoring items in the KNF Forest Plan (emerging issues) was the increasing demand for use of NFS lands and rural community development. This increased awareness and participation by the American public in wildlife-related activities makes almost every species socially important. It also increases concern about such issues as the number and extent of roads, snowmobile use, and the extent and nature of off-road vehicle use. Related activities on lakes and rivers are thought to influence wildlife that require wetland and riparian habitats at some point during the year. Understanding the balance between human-related recreational activities, wildlife habitat, and related requirements of wildlife is a significant and growing issue in management of public lands, including those managed by the Forest Service.

Our understanding of the wildlife resources has increased in recent years with a growing interest by universities, conservation organizations, and others in how wildlife resources are managed on public lands. At the same time, the scientific knowledge relevant to the management of public lands has grown significantly. The use of science is required both in law and regulation to manage wildlife and other resources on public lands. During Forest Plan implementation there have been many changes in management emphasis including New Perspectives, Ecosystem Management, Biodiversity, fragmentation, and most recently the Forest Service Strategic Plan. The Interior Columbia Basin Ecosystem Management Project (ICBEMP, USDA and USDA 1999c) was completed and contains findings of the most recent research on managing wildlife and wildlife habitats. In 2001, it was determined that the Migratory Bird Treaty Act applied to all federal agencies. All of these items will be used in developing revised Forest Plans.

The Forest Service is required in regulation and law to work closely with other federal and state agencies, such as the USFWS, Montana Department of Fish, Wildlife & Parks, and Idaho Department of Fish and Game in management of wildlife resources. These agencies manage the size of wildlife populations, while the U.S. Forest Service manages the habitat that supports wildlife populations, such as old growth, riparian areas and cavity habitat. Since development of the Forest plans, the States have developed Elk Management Plans that need to be addressed in Forest Plan Revision, and additional concerns associated with elk security and vulnerability have evolved and need to be incorporated as well.

The 1987 Forest Plan direction may not be adequate to ensure that issues such as invasive species, fire risks, and vegetation management are not adversely affecting wildlife viability. Viability and/or sustainability of wildlife species or groups of species will be addressed in plan revision.

Laws and Regulations

The National Forest Management Act (NFMA) of 1967 provides for balanced consideration of all resources in NFS land management planning and requires the Forest Service to help "maintain diversity of plant and animal communities to meet overall multiple use objectives". The Code of Federal Regulations (36 CFR 219.19) which implements the NFMA requires the Forest Service to maintain viable populations of existing native and desirable non-native vertebrate species in the KIPZ and to identify management indicators, which can be individual animal or plant species, entire communities, or special habitats. These requirements are in addition to those in the Endangered Species Act (ESA) of 1973, which requires the Forest Service to establish and implement a program to conserve wildlife and plants, including those listed as endangered or threatened.

Forest Service Strategic Plan

The goals and objectives of the USDA Forest Service Strategic Plan (Revision 2000, USDA 2000a) guide future agency actions.

Goal 1"Ecosystem Health" states: Promote ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grasslands and watersheds.

> *Objective 1.b states:* Provide ecological conditions to sustain viable populations of native and desired non-native species and to achieve objectives for management indicator species (MIS)/focal species.

The Forest Plans and Monitoring and Evaluation

Fifteen years of implementation and monitoring management activities conducted under the 1987 KNF and IPNFs Forest Plans provide the basis to evaluate whether change is required in the standards and guidelines or other actions necessary to provide for the conservation of wildlife resources as required by law and regulation, and the Forest Service Strategic Plan.

When the 1987 Forest Plans for the KNF and IPNFs were written they included objectives for open road density in grizzly recovery zones. In recent years, research has shown that linear calculations of open road density do not fully portray the impacts to grizzlies and the USFWS now requires additional road analysis. Both forests are currently amending their Forest Plans to reflect these changed analysis requirements.

Forest roads have become controversial in recent years. The road system on national forests provides many benefits by allowing people to drive to recreations sites and trailheads, drive for pleasure, or drive to favorite berry or firewood spots. Efficient movement of forest products and fire fighters requires a road system. However, recent research has also shown that roads have the potential to impact wildlife (Gucinski et al. 2001). Monitoring motorized access (roads and dispersed) has shown some road closures to be ineffective. Snowmobile use has been recorded in areas identified in the Forest Plans as closed.

Planning Questions For Wildlife

Planning questions have been developed to provide context to the wildlife revision topic. These questions are followed by a description of the historic and current condition and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.

Planning Question – What wildlife species historically and currently occur on the KNF and IPNFs and what are the trends?

Historic and Current Condition of Wildlife

Our National Forests provide a great variety of wildlife resources. These resources on the KNF and IPNFs include almost 300 species of birds, from calliope hummingbird to the bald eagle, and more than 50 species of mammals, from the little brown bat to the grizzly bear.

Based on historic and current condition and trends, little turnover in species presence is evident. A recent review (Samson 2002) and historical information (White 1998) provide a comparison of historic to current species present on the KIPZ. These documents identified only two species – the band-tailed pigeon and passenger pigeon as no longer present or extinct. Unfortunately, almost no information exists for bats, amphibians and reptiles so it is not possible to make a comparison for these species groups. Recent (since 1840) additions to the KNF and IPNFs include several non-native species, i.e. the European starling, English house sparrow, and rock dove and westward movement by the barred owl, blue jay, house mouse, and raccoon. Species introduction has brought the Merriam's turkey and ring-necked

pheasant. Overall, a near complete native assemblage of species continues to exist on the KIPZ. A current species list is included in Table 1-10 at the end of this section.

Significant reductions in the extent of western white pine, ponderosa pine, western larch, whitebark pine and subalpine larch cover types have been documented (USDA 1998c). Along with the decrease in the species listed above, increases in the extent of Douglas-fir and grand fir have been documented. Perhaps more importantly to wildlife is the increase in density of trees and the shift to largely mid-seral structural stage (USDA 1998c). The result for wildlife is a potential reduction in specific habitat features associated with specific cover types (for example; white-headed woodpecker and ponderosa pine). The shift to mid-seral forest changes the structure and conditions that some species may require, (for example; downed woody debris permits American marten access to rodents under the snow). Changes in forest cover types, structural components, and in the size and arrangements of habitat may have impacted wildlife populations. Detailed information on historic and current vegetation, including differences between the KNF and the IPNFs, is found under the vegetation revision topic section in this chapter.

In the warm/dry habitats there has been a significant change in forest composition from historic conditions. Ponderosa pine has decreased, while Douglas-fir has increased. Late succession forest structure has declined. These composition and structural changes have reduced suitable habitat for species like the flammulated owl and white-headed woodpecker. At the same time increased vegetation density has provided more suitable habitats for species such as the white-tailed deer and juncos but less habitat for species like the mountain bluebird. See Table 1-11 at the end of this section for species associated with warm/dry habitats. Table 1-12 at the end of this section lists species associated with old-growth habitat (late succession forests).

The warm/moist habitats have experienced similar changes. Forest composition has changed with the near loss of western white pine and a substantial reduction in western larch. These species have been replaced primarily by Douglas-fir and/or grand fir. There has been a reduction in late successional habitat from historical conditions. These changes have increased the suitable habitat for some species (e.g. red squirrel and ruffed grouse), while reducing suitable habitat for others (e.g. pileated woodpecker, brown creeper, and mule deer). Table 1-13 at the end of this section displays species associated with the warm/moist habitats.

Changes in the cool/moist habitats follow the same pattern as the two previous habitat types discussed. Decreases in western larch, whitepine, and lodgepole cover types have been filled in with increased cover from Englemann spruce, sub-alpine fir, mountain hemlock, and Douglas-fir. The primary change in habitat structure is a decrease in late successional habitat. These changes have increased the suitable habitat for some species like the sharp-shinned hawk and snowshoe hare, while reducing suitable habitat for others, such as the northern goshawk. Table 1-14 at the end of this section displays species associated with the cool/moist habitats.

Cool/dry habitats are grouped slightly different on the KNF portion of the KIPZ than they are on the IPNFs side. The basic difference is the separation of the cold/dry habitats on the Kootenai, while they remain combined with the cool/dry habitats for the IPNFs. The primary reasons for the difference are 1) whitebark pine does not occur on the KNF until the higher cold dry types, but does grow at lower elevations on the IPNFs, and 2) there is very little cold/dry habitat on the IPNFs. Composition changes from historic levels differ between the two Forests due to this grouping method. The KNF portion of the KIPZ has changed due to a reduction in lodgepole pine cover type. It has been replaced by increases in sub-alpine fir, Douglas fir and western larch cover types. Late successional habitat remains about the same as historic levels. Early succession stages have decreased, while mature forest has increased. The IPNFs portion shows declines in whitebark pine and sub-alpine fir/mountain hemlock cover types. Several cover types have increased (lodgepole pine, Douglas-fir, grand fir). Changes in structure stages include a decline in late successional forests and an increase in immature forests These changes have increased the suitable habitat for some species, such as the three-toed woodpecker and American marten,

while reducing suitable habitat for others, like the blue grouse and woodland caribou. Table 1-15 at the end of this section displays species associated with the cool/moderately dry habitats.

Unlike the other habitat groups, the cold/dry types (especially on the KNF portion of the KIPZ) have experienced an increase in late successional forest structure, while early succession forest stages have declined. The primary composition change has been the large reduction in whitebark pine and the associated increase in cover by sub-alpine fir and mountain hemlock. These changes have decreased the suitable habitat for some species, such as the Clark's nutcracker and grizzly bear, while increasing the suitable habitat for other, like the spruce grouse. The cold/dry habitats meet all or part of the life cycle needs for the species listed in Table 1-16 at the end of this section.

In addition to the forest composition and structure changes in habitats, there has been a change in the disturbance processes (type, frequency, size, and duration) across all habitats. Again, see the Vegetation section for a more detailed discussion on disturbance processes and the changes from historical conditions. The process changes have affected landscape patterns or patch dynamics (size, spatial arrangement, interior and edge habitats). Pattern influences habitat suitability and wildlife movements. In general, patch sizes are now smaller and thus result in more edge and less interior habitat. Species populations associated with edge (Table 1-17) have more suitable habitat, while species populations needing larger blocks of undisturbed interior habitat (Table 1-18) have less suitable habitat than was representative of historical levels.

Some individual habitat components have also changed from historical condition due to changes in disturbance processes. This is especially true due to changes in fire frequency and intensity (resulting from fire suppression efforts) and the human disturbances of road construction and timber harvest (which result in removal of firewood and pulp products). Standing dead tree (snags – especially larger diameters), down dead tree (again the larger diameters), and large blocks of standing fire-killed tree habitat may be the most altered. Species using snags and down dead trees are listed in Table 1-19 at the end of this section. The black-backed woodpecker is an example of a species closely tied to standing fire-killed trees, as well as snags in general.

Changes in access (especially motorized) have had an effect on many aspects of wildlife, including habitat effectiveness and security. Direct mortality (related to access) from trapping, legal hunting, and illegal shooting has impacted all wide-ranging carnivores (e.g. lynx, wolverine, grizzly and black bears, wolves), fur-bearing species (e.g. mink, fisher, marten), ungulate species (e.g. bighorn sheep, mountain goat, elk, moose, mule deer), and some small mammals (e.g. Columbian ground squirrel). Direct mortality from collisions with vehicles may be impacting several of the carnivore and ungulate species, as well as small mammals, reptiles and amphibian populations. Displacement (due to human activity on or near roads) from suitable habitat has also occurred for many species. Roads can also be barriers to movement between habitat blocks for some species (e.g. amphibians). Total road miles on the KNF increased from 6,200 to 7, 460 between 1987 and 1997 (USDA 1998a). The demand for access and use of public roads has increased well beyond those anticipated in the original Forest Plans. The percent of road miles with restricted access (yearlong or seasonal) increased from 27% to 57% during that same time period (ibid). The net result is a decrease of about 1,345 miles of open motorized access since the KNF Plan was approved (ibid).

Dry open forest types and shrublands on the KNF and IPNFs have infestations of several noxious weed species including spotted knapweed, St. John's wort, hawkweed, sulphur cinquefoil, dalmation toadflax, and cheatgrass. Common tansy and reed canary grass are found along many of the riparian systems on both Forests. On the KNF, there has been more than a 10% increase in the number of acres impacted by noxious weed species since 1987. At the same time, there has been more than a 10% increase in density of existing infestations since 1987 (USDA 2002b).

Overall, the vegetation and roads analyses show the following important changes in forested wildlife habitats:

- Reductions in early and late succession habitats (USDA 1998b)
- Loss of fire-killed trees, large snags and down wood.
- Significant reductions of western white pine, white-bark pine, western larch, sub-alpine larch, and ponderosa pine forest cover types (USDA 1998b).
- Increases in the extent of Douglas-fir and grand fir, and cedar/hemlock on the IPNFs.
- Increases in the density of trees and a shift to a largely mid-seral structural stage.
- Reduction in riparian, wetland and lakeshore habitat (due to road construction and development) and vegetation composition changes in riparian areas (due to noxious weeds).
- Changes in vegetative composition on big game winter ranges due to noxious weed encroachment (USDA 2002b).

These changes have resulted in increased or decreased suitable habitat, depending on the wildlife species.

Wildlife habitats (forest cover types, succession stage, landscape pattern) that fall within historic ranges are providing a high likelihood of persistence for the species associated with those habitats. This is the coarse filter approach. These habitats need to be monitored to validate their effectiveness and to confirm management approaches to maintain these habitats within historic levels. Management indicator species (MIS) are the tool used to monitor the effects of management activities on habitat.

Species that are considered for designation as an MIS include: threatened and endangered species, species with special habitat needs, species commonly hunted, fished, or trapped, non-game species of special interest, and species whose population changes are believed to indicate the effects of management activities on other species groups or communities (36 CFR 219.19). Table 1-6 identifies the MIS for the KNF and IPNFs.

Table 1-6: Current list of MIS on the KIPZ and the Habitat or Components they Represent

Management Indicator Species (MIS)	Forest(s)	Habitat Dependency
Grizzly Bear	IPNFs, KNF	General Forest
Gray Wolf	IPNFs, KNF	General Forest
Bald Eagle	IPNFs , KNF	Rivers and Lakes
Peregrine Falcon	IPNFs , KNF	Cliffs
Woodland Caribou	IPNFs	Climax Forest
Elk	IPNFs , KNF	General Forest
White-tailed Deer	IPNFs, KNF	General Forest
Mountain Goat	KNF	Alpine
Moose	IPNFs	Mature Timber
Pileated Woodpecker	IPNFs, KNF	Snags, Old Growth
Goshawk	IPNFs	Old Growth
American Marten	IPNFs	Old Growth

Research and monitoring conducted since 1987 has increased our understanding of the habitat requirements of the current MIS. The list of species identified as threatened or endangered has changed and state wildlife agencies have shifted the goals for the populations they manage.

Peregrine falcon is no longer listed as an endangered species and the delisting process for bald eagles and gray wolves has begun. Canada lynx was added to the threatened species list in 2000. In 1987, there

were an estimated 5,500 elk on the KNF. The KNF Forest Plan estimated, that in 50 years, sufficient habitat would exist on the forest to support 7,700 elk. In 1992, the Montana Department of Fish, Wildlife & Parks (MDFWP) released an Elk Management Plan that called for changes in elk numbers (increases or decreases) based on location in Montana (elk management units). These examples of changes in the federally protected species and shifts in population management by state agencies suggest a need to reevaluate and update the species on the MIS list.

The companion approach to the coarse filter is the "fine filter" analysis in which conservation strategies are used for individual species or groups of species to contribute to population viability. The fine filter approach narrows the focus to those species that require habitat that may be outside the historic range of variation (HRV). In addition, there are species whose population levels have been reduced to levels requiring special management considerations such as species listed as threatened, endangered, or sensitive. These species-at-risk are a second group of species that may require a fine filter or more detailed approach to provide habitat or manage other factors that threaten the species viability.

The species-at-risk on the KIPZ include four categories:

Category 1 – federally listed or proposed for listing under the Endangered Species Act

Category 2 – range-wide or national imperilment

Category 3 – region-wide or state imperilment

Category 4 – forest species of concern

Prioritizing species-at-risk is important to reduce differences of opinion among agencies and others interested in the conservation of rare elements and to establish priorities in habitat conservation and restoration. The species-at-risk on the KIPZ include the following.

Species Protected under the Endangered Species Act

Endangered Species

Gray Wolf – Species at Risk Category 1, Management Indicator Species

Both the KNF and IPNFs are included in the Northwestern Montana Recovery Area. In the 2001 Monitoring Report (USDA 2002b), the USFWS reported two packs living within the KNF, plus a pair of wolves, and a group of wolves that were relocated on the forest. South of Interstate 90, the Idaho portion of the KIPZ is within the Experimental Nonessential portion of the Recovery Area. During 2001, there were two resident packs of wolves on the IPNFs. Habitat for gray wolves includes a variety of forested and open conditions centered on big game winter ranges. Transient wolves are found throughout the KIPZ. The recovery goal for gray wolves is thirty pair distributed across all three-recovery areas. Since 2000, the gray wolf population has exceeded that level and the USFWS has begun the process to reclassify the gray wolf. Recovery goals are being met and the 1987 Forest Plan direction appears to be adequate for this species.

Woodland Caribou - Species at Risk Category 1, Management Indicator Species

Woodland caribou are identified as endangered in the IPNFs. The only known population in the lower 48 states is located in the Selkirk Mountains of Idaho and Washington, which is the Recovery Area for the species. Between 1987 and 1990, there were three augmentations of this population with a total of 60 caribou from British Columbia. A second population augmentation effort was begun in 1996 and over the next three years an additional 43 caribou were released in the Recovery Zone. In Montana, they are identified as a sensitive species. Although historically caribou were found on the KNF, there are currently no known resident populations.

Research in Idaho has identified woodland caribou habitat as mature and old growth subalpine fir and cedar/hemlock forest. Suitable early winter habitat is in shortest supply of all the seasonal caribou habitats. Currently, 31% of the potential caribou winter habitat in the North Zone on the IPNFs is

suitable (North Zone GA of the IPNFs). Currently, vegetation conditions are within the historic range of variability and habitat is not a limiting factor. The trend for caribou on the KIPZ is one of declining population numbers, with the biggest factor being mountain lion predation. Additional restrictions may be necessary to be implemented with Forest Plan Revision.

Threatened Species

Bald Eagle - Species at Risk Category 1, Management Indicator Species

The KIPZ is located within the Upper Columbia Basin Bald Eagle Recovery Zone (Zone 7). Since coming under federal protection in 1986, both the number of nests and the wintering population have increased. Numbers have increased nation-wide to a point that USFWS proposed delisting the species in 1999 (Table 1-7). Bald eagles nest within ¼ mile of a large body of water in a large, open crowned tree, such as ponderosa pine, cottonwood, larch or Douglas-fir. Generally, nest trees are located in areas relatively free from human disturbance. They forage upon waterfowl, fish, and carrion. Most bald eagle nest sites are not on NFS land. Recovery goals are being met for the bald eagle and the 1987 Forest Plan direction is adequate for this species.

Table 1-7: Zone 7 Bald eagle population recovery objectives and current status

Objective	Current Status [1/]
98 Territories with secure habitat	127 Territories with secure habitat
69 Breeding Pairs	108 Breeding Pairs
Average reproductive rate 1.0 fledged/pair with average success/occupied site ≥ 65%	Average reproductive rate 1.75 fledged/pair and success ratio is 75%
Stable to increasing winter populations	Stable to increasing winter populations

1/Personal communication Dennis Flath (MFWP Bald Eagle Coordinator) with Wayne Johnson, 6/15/98

Canada lynx - Species at Risk Category 1

Lynx are known to occur throughout the KIPZ, however the population size is unknown. Canada lynx habitat has been identified as all lands above 4,000 feet elevation. Habitat requirements for lynx vary based on their activity. For denning habitat, they seek out mature forests of spruce, subalpine fir, lodgepole pine, cedar, and hemlock. Within these stands they seek out areas with a complex structure of downed trees that provide security cover for kittens. Canada lynx foraging habitat is dense, young stands (15 to 45 years of age) of coniferous forest. Within this type of forest, snowshoe hare, the primary prey of lynx, are most common. Snowshoe hare are also found in mature forest with a well-developed understory of young conifers and shrubs. Adequate amounts of suitable denning and foraging habitat is found throughout the KNF, but may be lacking in some areas of the IPNFs.

The KIPZ includes portions of the Northern Rocky Mountains Lynx Geographic Area. Lynx habitat within the geographic area is divided into smaller lynx management units (LAUs) for analysis purposes. Each LAU is managed for various habitat components as described in the Canada Lynx Conservation Assessment and Strategy (Ruediger, W., et al. 2000). A recovery plan for Canada lynx has not been completed as of completion of this document. As a result population recovery objectives have not been established.

Grizzly Bear - Species at Risk Category 1, Management Indicator Species

Grizzly bears are habitat generalists and use a variety of habitat from low elevation riparian areas to avalanche chutes as food availability changes. Upon emerging from their den in the spring, grizzlies move to low elevations seeking carrion and green vegetation. As the snow line recedes, they follow the emergent vegetation to higher elevations until late summer when they focus on eating berries. Throughout the year, they prey on small mammals and occasionally ungulates when they are available.

The KIPZ includes all or portions of three grizzly recovery zones. The Cabinet/Yaak Grizzly Bear Ecosystem is located entirely within the KIPZ. Portions of the Selkirk and Northern Continental Divide Ecosystems are also within the KIPZ. Grizzly bear habitat within the Recovery Zones is divided in smaller bear management units (BMU), approximately the size of a female's home range, for analysis and monitoring. Each BMU is monitored for various habitat components identified as important for recovery of the species.

In 1999, the USFWS determined that the Selkirk and Cabinet/Yaak ecosystems should be combined and the grizzly bears in both were warranted but precluded from reclassification as an endangered species (Federal Register Vol. 58, No. 28 1993, pp. 8250-8251). Recovery goals for the Cabinet/Yaak-Selkirk Grizzly Bear Ecosystem and the 2001 status are in Table 1-8. Approximately 4% of the Northern Continental Divide Ecosystem (NCDE) lies in the extreme northeast corner of the KNF. Recovery criteria for the NCDE are similar to the Selkirk-Cabinet/Yaak with different goals (Table 1-9).

Table 1-8: Recovery Goals and Status of Selkirk-Cabinet/Yaak Recovery Zone

Recovery Criteria	**Current Status**
Cabinet/Yaak portion 1/	
6 unduplicated sightings of females with cubs (6 year average)	1.2
18 of 22 bear management units (BMU) occupied by females with young	13 of 22 BMUs
Human caused mortality not to exceed 0.04 of the population estimate	0.8 % (6 yr. Average)
Selkirk Portion [1./]	
6 unduplicated sightings of females with cubs (6 year average)	1
7 of 10 BMUs occupied by females with young	5
Human caused mortality not to exceed 4% of the population estimate	1.3

1/ Data Source: Cabinet/Yaak Grizzly Bear Recovery Area 2001 Research and Monitoring Progress Report.
[2/] Data from Selkirk Ecosystem Project December 2000- December 2001

Table 1-9: Recovery Goals and Status for the Northern Continental Divide Grizzly Bear Ecosystem

Recovery Criteria	**Current Status 1/**
10 females with cubs inside Glacier N.P. (GNP) / 12 females with cubs outside GNP, total 22 (6 year average)	Inside GNP – 8.7females with cubs Outside GNP- 13.2 females with cubs 21.8 total
21 of 23 BMUs occupied by females with young, Mission Mtns. occupied	23 of 23 BMUs occupied, Missions occupied
Human caused mortality (limit 4% of minimum population, less than 12.7%)	16.0% (6 yr. Average),

1/Data Source: Personal communication Chris Servheen, USFWS Grizzly Recovery Coordinator, with Steve Johnsen, 11/02

Population recovery goals for the grizzly bear in the Selkirk-Cabinet/Yaak ecosystem are not being met. Additional management strategies are being developed (the access amendment) and will be incorporated into plan revision. The 1987 Forest Plan direction appears to be adequate for grizzly bears in the Northern Continental Divide ecosystem although mortality rates are higher than recovery goals.

Sensitive Species

Sensitive species are those species for which population viability is a concern, and are administratively determined by the Regional Forester. Population trend for many of these species is unknown at this time. Monitoring for sensitive bird species is being conducted as part of the Region 1 Landbird Monitoring Program. This program monitors bird presence along permanent transects in both managed and unmanaged, burned and unburned forests in all forest types. Once adequate data is available assumptions on population trends may be determined for some of these species.

Columbian Sharp-Tailed Grouse - Species at Risk Category 3

Columbian sharp-tailed grouse are found in the Tobacco Valley of northwest Montana. A portion of their habitat is on federal land, but the majority of habitat is on private and state land. The only known active lek is on private land. Their habitat includes bunchgrass prairie during spring, summer, and fall and deciduous cover (trees and shrubs) during winter (Mussehl and Howell 1971).

Black-Backed Woodpecker - Species at Risk Category 3

This medium sized woodpecker is a permanent resident of northern coniferous forests in North America, below 4,500 feet elevation. They feed within concentrations of dead and dying trees, especially areas that have recently burned or are undergoing insect outbreaks. Their primary prey is the larvae and pupae of wood-boring insects.

The role of forest fires in the ecology of black-backed woodpeckers has only recently begun to be understood. Following a forest fire, black-backed woodpeckers move into the burned area and feed upon wood-boring insects that attack the recently fire-killed and stressed trees. Black-backs appear to focus on trees that were killed by the fire, rather than merely scorched. The birds nest in trees that were snags before the fire and for several years post-fire they are very successful at raising clutches and the local population increases dramatically. By the fifth year after the fire black-backed woodpeckers have begun to disperse from the location (Hutto 1995;pg. 1050, Murphy and Lehnhausen 1998;pg. 1359).

At the current time it is unclear how this species maintains it's population between fire events. Goggans et al. (1989) studied black-backed woodpecker's response to a mountain pine beetle outbreak. They state that by maintaining overmature forests, where a prey base of wood-boring insects can be found, black-back populations will be maintained. Hutto (1995) believes that the species is restricted to early post-fire habitat and populations are maintained by a patchwork of recently burned forests. As a primary cavity–nester, they require dead or live trees with heartwood rot and show a preference for Douglas-fir, ponderosa pine, lodgepole pine, and western larch. Preferred habitat, fire killed and insect infested trees, has declined since historic times due to fire suppression and quick timber harvest responses to insect outbreaks. A slight upward trend in habitat created by fire has occurred over the past three decades. Monitoring has identified this species throughout the KIPZ.

Common Loon - Species at Risk Category 3

Common loons breed on both the KNF and IPNFs and nest on thirteen lakes on the KNF and two lakes on the IPNFs. They begin arriving at lakes larger than 25 acres during April. Nests are built on islands, logs, rocks, muskrat houses, or a sedge mat. Lakes in the KIPZ generally do not have a complex network of bays, so loon nests are most often found in the inlet or outlet of the lake. When choosing a nest site loons select locations that are protected from wave action. Once the eggs have hatched and the young are ready to leave the nest, the family moves to a nursery area, an area protected from wind, waves, and other loons with shallow water. As fish eaters that capture their prey underwater, loons require clear water.

Loons are very susceptible to disturbance caused by recreational boating and to habitat loss with shoreline development. Some evidence exists that shows local declines in Montana following habitat loss and a reduction of reproductive success related to disturbance. (Dolan 1994; pp. 19-27). Documented nesting on the IPNFs has occurred on only two lakes (Pend Oreille and Upper Priest) in the past six years while historically they are known to have nested on several others as well.

Fisher - Species at Risk Category 3

Fisher are native on the KIPZ and are generally associated with diverse habitat ranging from riparian areas to dense, mixed conifer forests. Habitat use is largely determined by prey availability and the presence of overhead cover. They have shown a preference for riparian forests and adjacent stands as travel routes and rest areas (Heinemeyer and Jones 1994; pg. 17). The availability of suitable den sites may also influence habitat selection. Den sites are usually located in tree cavities far above the ground in areas with abundant horizontal and vertical structure used for concealment and escape. Fisher have been found in young stands (trees 5-13 in. dbh.) that contain some characteristics of old forest, such as large snags or downed logs (Jones and Garton 1994; pg. 384).

Their diet is varied. Fisher are noted for their ability to prey on porcupines, however their list of prey species is extensive including numerous small mammals, reptiles, amphibians, bird eggs, fish, and fruit (Heinemeyer and Jones 1994;pp. 7-8). Major winter foods include carrion, snowshoe hare, mice, and voles.

Fisher are very susceptible to trapping and evidence exists that fisher populations have declined throughout the KIPZ as a result. A re-introduction program was instituted on the KNF to increase local populations. This program has had little success. Fisher appear to be more abundant on the IPNFs, especially in the Priest Lake area. Present populations are limited in abundance and extent and may be isolated from other populations by distance or lack of suitable habitats. Small population size, low productivity, and possible isolation leads to an increased probability of extinction and a reduced probability of re-colonization of vacant, suitable habitats. The fisher population on the KIPZ is likely to follow the same pattern. Additional information and data collection is required for this species on the KIPZ. It may be necessary to incorporate additional standards and/or monitoring criteria for this species in plan revision.

Flammulated Owl - Species at Risk Category 3

Flammulated owl habitat is found at elevations below 4,500 feet in both western Montana and northern Idaho. Nesting and foraging habitat for this species has been identified as mature to old growth ponderosa pine/Douglas-fir stands. Within these stands this owl nests in cavities excavated by woodpeckers. Mature ponderosa pine stands also serve as foraging habitat. Historically, these stands contained large diameter trees and very little undergrowth. The stands supported high numbers of prey (insects) and their open nature was compatible with the owl's hunting strategy of capturing insects in flight. Roosting habitat or areas where individual flammulated owls spend the day resting, has been identified as dense, mixed conifer stands. This type of stand was historically found in draws or moist sites. The owls typically perch on a horizontal limb against the trunk of a young ponderosa pine (McCallum1994; pgs. 15-31).

Habitat loss from logging and fire suppression in ponderosa pine forests impact this species. Monitoring has found flammulated owls throughout most of the ponderosa pine habitats on the KIPZ. The majority of these habitats are found on the KNF portion of the KIPZ. Although never a dominant forest type on the IPNFs (<8%) there has been a significant reduction (to about 2%) there as well as on the KNF. Recent changes in timber management in Douglas-fir and ponderosa pine forests have improved habitat conditions for this species in some areas. However, without major management intervention these dry habitat types will continue to lose their suitability for flammulated owl. Restoration strategies to provide more late succession ponderosa pine habitats need to be developed for this species.

Harlequin Duck - Species at Risk Category 3

Harlequin ducks winter on the Pacific coast and migrate inland to breeding streams in northern Idaho and western Montana between March and June. Mated pairs move to swiftly flowing mountain streams to breed and nest. The streams are clear with rocky substrates and an abundance of riffles and rapids. Nests are usually well hidden close to the stream or on an island. When the ducklings hatch they move to areas

with slow water or pools until they can swim well enough to negotiate the main channel. Boulders, logs, and debris jams are used as loafing sites in the stream. Harlequin ducks exhibit strong fidelity to their breeding streams, returning to the same stream year after year. Shortly after breeding the males return to the west coast, as many as 40% of the females abandon their broods and return to the coast before their ducklings fledge. Ducklings fly to the coast during late summer or fall after fledging (Cassirer et al. 1996; pgs.9-11).

In recent years reductions in the number of breeding streams used in Montana and Idaho have been noted (Cassirer et al. 1996; pg. 8) or declining (pers. Comm.. 11/99), however, pair numbers on most streams that have been surveyed for 3 or more years appear to be stable. The 1987 Forest Plan direction, including incorporation of Inland Native Fish Strategy (INFS) guidelines, appear to be adequate to protect habitat for this species. However, human disturbance associated with recreation activities are likely to be a much greater impact than other resource management. Recreation use has greatly increased and is likely to continue to increase. Additional information and data collection is required for this species on the KIPZ. It may be necessary to incorporate additional standards and/or monitoring criteria for this species in plan revision.

Northern Bog Lemming- Species at Risk Category 3

The northern bog lemming occurs at the southern extent of its range in Idaho and Montana. Initially this species was believed to be restricted to fens and bogs. However, recent captures of bog lemmings in wet meadows, old growth hemlock, and subalpine fir forest suggests that the species may not be as limited in its habitat requirements as previously thought (Pearson 1999; pgs. 14-24).

Impacts to bogs and wet meadows by off highway vehicles and snowmobiles have the potential to degrade bog lemming habitat and negatively impact the species (Hickman et al. 1999;pg. 4.8).). Surveys throughout the KIPZ have found bog lemmings in only a few select locations. The 1987 Forest Plan direction, including incorporation of INFS guidelines, appear to be adequate for protection of habitat for this species from most management activities. However, additional information and data collection is required for this species on the KIPZ. It may be necessary to incorporate additional standards and/or monitoring criteria for this species in plan revision. Snowmobile use is known to result in compaction and eventual loss of habitat for this species.

Northern Goshawk- Species at Risk Category 3, Management Indicator Species

The northern goshawk is the largest accipiter in Montana and Idaho and may be seen year-round. They are birds of heavy forest cover and nest in mature to old growth forest on the lower third of northwest to northeast slopes. Nests have been found in ponderosa pine, subalpine fir, Englemann spruce, western larch, lodgepole pine, and grand fir. Goshawks prey on bird and mammals as large as grouse and snowshoe hare. They hunt in open forests, clearings, and open fields (Dubois and Becker 1987).

Habitat loss from logging and changes in stand structure due to fire suppression activities impact this species. Numbers have apparently declined in recent years in association with the loss and fragmentation of old-growth forest across the Rocky Mountains (Dobkin 1992 pg. B-6). Additional information and data collection is required for this species on the KIPZ. It may be necessary to incorporate additional standards and/or monitoring criteria for this species in plan revision.

Townsend's Big-Eared Bat- Species at Risk Category 3

Townsend's big-eared bat forages in the canopy in forested areas for moths in the KIPZ. From October to March, Townsend's big-eared bats hibernate in large colonies within caves and mineshafts. In March, pregnant females form maternity colonies in caves. Throughout their active period, (March to October) males and females without young roost singly or in small groups. Day roosts include caves, mineshafts, old buildings, and snags (Genter and Jurist 1995).

As the Forest Service closes more mines with bat-accessible gates, human disturbance will decrease and habitat will improve for this and other bat species. Additional information and data collection is required for this species on the KIPZ. It may be necessary to incorporate additional standards and/or monitoring criteria for this species in plan revision.

Wolverine- Species at Risk Category 3

Wolverines are found on the KIPZ. They are primarily scavengers and feed upon carrion or ungulates killed by large predators, such as wolves, bears, cougars, and humans or animals that have died from natural causes. They also kill their own prey occasionally, when the opportunity arises, typically small mammals. The constant search for food keeps them moving throughout their range, daily movements of 20 miles are common. The result is that wolverines have very large home ranges, 39 to 350 square miles, which are not associated with specific forest types or topography (Banci 1994; pgs.111-119).

Females give birth to two-three young in late winter to early spring. Young are born in dens dug through the snow to ground level. Dens are located in the upper subalpine zone, at or near treeline and are associated with boulder fields, avalanche debris, or log jams. A source of carrion or other food is usually nearby. Female wolverines with kits are very sensitive to disturbance and if disturbed she will move them to new den or rendezvous sites (Banci 1994; pg. 110, Copeland 1996; pgs. 94-99).

Wolverine populations may have declined from historic levels, as a result of over-trapping, hunting, habitat changes, and intolerance to human developments. As the amount of winter backcountry recreation increases, wolverine den sites may become more susceptible to human disturbance. Additional information and data collection is required for this species on the KIPZ. It may be necessary to incorporate additional standards and/or monitoring criteria for this species in plan revision.

Peregrine Falcon- Species at Risk Category 2, Management Indicator Species

Peregrine falcons nest on cliff ledges, rock outcrops, and talus slopes throughout Idaho and Montana. Very few suitable nesting (cliff) sites occur on national forest lands. Eggs are laid in a hollow or scrape on the cliff ledge. Typically, nesting cliffs dominate the surrounding area and overlook a body of water. The falcon's primary prey is birds ranging in size from swallows to ducks (Dubois and Becker 1987).

The peregrine falcon was removed from the endangered species in 1999 and added to the sensitive species list. Since then the population has been stable. The 1987 Forest Plan direction is adequate for this species.

Woodland Caribou Species at Risk Category 1

Woodland caribou is a sensitive species on the Kootenai NF portion of the KIPZ and endangered on the Idaho Panhandle NF portion. For a description of this species see the endangered species writeup. Although caribou sightings do occur on the Kootenai they are rare and limited to the northern extreme in the upper Yaak and Eureka areas. These are thought to be dispersing animals from either Idaho or Canada.

Species-at-Risk

Lewis' Woodpecker- Species at Risk Category 4

Lewis's woodpecker is a summer resident of both western Montana and north Idaho. They are found in open ponderosa pine and cottonwood forests, where they nest in cavities in snags or live trees. This woodpecker rarely excavates insects from trees. They prefer to perch on the top of a tree or fence post and capture insects in flight. In late summer and autumn, their diet also includes berries, seed, and fruit (Dobkin 1992; pg. B-42).

Lewis' woodpecker is increasingly uncommon in the region (Dobkin 1992; pg. B-42). Habitat loss from logging and fire suppression in ponderosa pine forests impact this species. Reductions in the number of

large diameter cottonwoods in riparian areas and snags, generally, also contribute to a decrease in preferred habitat both on private and NFS lands. The 1987 Forest Plan direction, including incorporation of INFS guidelines, and recent changes in timber management in Douglas-fir and ponderosa pine forests have improved habitat conditions for this species in some areas. However, without major management intervention these dry habitat types will continue to lose their suitability for Lewis' woodpecker.

Planning Question – What are the implications of continuing under current management direction for Wildlife?

The KNF and IPNFs Forest Plans were signed in 1987 and since that time research has shown that certain forest cover types are not as well represented as they were historically. Additionally, there has been a shift from late and early successional forest to a more uniform mid-successional forest. The size of uninterrupted blocks of forest (patch size) is smaller than it was historically. Each of these forests' characteristics contributes to an areas ability to serve as wildlife habitat. The documented changes increase suitable habitat for some species (for example: white-tailed deer, American robin, black bear) and decrease suitable habitat for others (for example: Canada lynx, white-headed woodpecker, flammulated owl). Many of the species listed as sensitive or management indicators under the 1987 Forest Plans require special habitats. The 1987 Forest Plan direction and/or loss of those habitats may be inadequate to protect species dependent on those habitats.

Since 1987, our understanding of the impacts of roads and noxious weeds has increased. The transportation system on NFS lands impacts suitable habitat in many ways. Roads remove fertile land from production, provide access for the public, and facilitate the extraction of natural resources. Each of these characteristics of roads has costs and benefits to different wildlife species. One of the areas where new direction is required is access management. Demands on access to public lands have increased dramatically over the past two decades, well above those anticipated in 1987 Forest Plans. The 1987 Forest Plans do not contain adequate management strategies for snowmobiling in lynx, wolverine, or bog lemming habitat, off road vehicle use, or providing adequate security levels for big game. The impacts of noxious weeds to wildlife habitat have only recently begun to be appreciated. Weed infestations have reduced the ability of many winter ranges on the KIPZ to support big game. Dry upland sites appear to be especially susceptible to weeds. Noxious weeds do not provide the forage value to wildlife that native plants provide.

The revised Forest Plans need to be in compliance with new laws, regulations, and management direction. Forest Plans also need to incorporate new research and science that has been developed. The new strategies have been developed to aid in the sustainability of all native and desired non-native species.

The 1987 Forest Plan direction appears to be adequate for species like the gray wolf, bald eagle, and peregrine falcon. Recovery goals are being met for each of these species. Not enough information is available for species such as lynx (which were only recently listed) or for species currently listed as sensitive, such as harlequin duck and wolverine.

Management direction for several sensitive species will need to be addressed in Forest Plan Revision. Species have been added and deleted from this list over the past two decades as new information is gathered. Current information is not adequate to determine trends of any kind for these species. This is often a case of inadequate funding to conduct a proper monitoring program, however fifteen years of plan implementation has often resulted in an "inconclusive" determination for several of the items in monitoring plans.

Over the past two decades there have been many changes in management strategies including biodiversity, ecosystem management, fragmentation, sustainability, viability, and linkage zones to name a

few. Management strategies for grizzly bear have continued to evolve, and have only recently been developed for lynx. They may continue to evolve with the development of a recovery plan for lynx and for additional species that may be listed in the future. State agencies have developed elk management plans and habitat components such as security and vulnerability have evolved. The 1987 Forest Plans may not fully reflect all of these new strategies.

Hunting, fishing, wildlife viewing, and recreational pursuits (hiking, biking etc) are important components that make up the quality of life for residents of the KIPZ. Socially, it is the availability of these and many other activities associated with the area, that has and continues to attract people to the area. They are also important economically to all of the local communities. The area attracts residents of adjacent large cities such as Spokane and Kalispell but also non-residents that don't have these opportunities elsewhere. Providing adequate populations of all wildlife species has become very important, as the demand for these activities has increased. NFS lands must provide habitat to meet the needs of all of these wildlife species.

Table 1-10: KIPZ Species List

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
American Avocet	*Recurvirostra americana*	migrant	seasonal
American Badger	*Taxidea taxus*	yearlong	yearlong
American Beaver	*Castor canadensis*	yearlong	yearlong
American Bittern	*Botaurus lentiginosus*	seasonal	seasonal
American Coot	*Fulica americana*	yearlong	yearlong
American Crow	*Corvus brachyrhynchos*	yearlong	yearlong
American Dipper	*Cinclus mexicanus*	yearlong	yearlong
American Golden-Plover	*Pluvialis dominica*	no record	accidental
American Goldfinch	*Carduelis tristis*	yearlong	yearlong
American Kestrel	*Falco sparverius*	yearlong	yearlong
American Marten	*Martes americana*	yearlong	yearlong
American Pika	*Ochotona princeps*	yearlong	yearlong
American Pipit	*Anthus rubescens*	seasonal	seasonal
American Redstart	*Setophagaruticilla*	seasonal	seasonal
American Robin	*Turdus migratorius*	yearlong	yearlong
American Tree Sparrow	*Spizella arborea*	seasonal	seasonal
American White Pelican	*Pelecanus erythrorhynchos*	no record	transient
American Wigeon	*Anas american*	yearlong	yearlong
Ancient Murrelet	*Synthliboramphus antiquus*	no record	accidental
Anna's Hummingbird	*Calypte anna*	no record	transient
Arctic Tern	*Sterna paradisaea*	no record	accidental
Ash-Throated Flycatcher	*Myiarchus cinerascens*	accidental	no record
Baird's Sandpiper	*Calidris bairdii*	migrant	migrant
Baird's Sparrow	*Ammondramus bairdii*	accidental	no record
Bald Eagle	*Haliaeetus leucocphalus*	yearlong	yearlong
Band-Tailed Pigeon	*Columba fasciata*	accidental	accidental
Bank Swallow	*Riparia riparia*	seasonal	seasonal
Barn Owl	*Tyto alba*	seasonal	seasonal
Barn Swallow	*Hirundo rustica*	seasonal	seasonal
Barred Owl	*Strix varia*	yearlong	yearlong
Barrow's Goldeneye	*Bucephala islandica*	yearlong	yearlong
Belted Kingfisher	*Ceryle alcyon*	yearlong	yearlong
Bewick's Wren	*Thryomanes bewickii*	no record	yearlong
Big Brown Bat	*Eptesicus fuscus*	seasonal	yearlong
Bighorn Sheep	*Ovis canadensis*	yearlong	yearlong

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
Black And White Warbler	*Mniotilta varia*	accidental	accidental
Black Bear	*Ursus americanus*	yearlong	yearlong
Black Rosy Finch	*Leucosticte atrata*	no record	seasonal
Black Scoter	*Melanitta nigra*	no record	accidental
Black Swift	*Cypseloides niger*	seasonal	seasonal
Black Tern	*Chlidonias niger*	seasonal	seasonal
Black-Backed Woodpecker	*Picoides arcticus*	yearlong	yearlong
Black-Bellied Plover	*Plavialis squatarola*	no record	transient
Black-Billed Magpie	*Pica pica*	yearlong	yearlong
Black-Capped Chickadee	*Parus atricapillus*	yearlong	yearlong
Black-Chinned Hummingbird	*Archilochus alexandri*	seasonal	seasonal
Black-Headed Grosbeak	*Pheucticus melanocephalus*	seasonal	seasonal
Black-Necked Stilt	*Himantopus mexicanus*	migrant	migrant
Blackpoll Warbler	*Dendroica striata*	accidental	accidental
Black-Throated Sparrow	*Amphispiza bilineata*	no record	accidental
Blue Grouse	*Dendragapus obscurus*	yearlong	yearlong
Blue Jay	*Cyanocitta cristata*	yearlong	yearlong
Blue-Winged Teal	*Anas discors*	seasonal	seasonal
Bobcat	*Felis rufus*	yearlong	yearlong
Bobolink	*Dolichonyx oryzivorus*	seasonal	seasonal
Bohemian Waxwing	*Bombycillia garrulus*	seasonal	seasonal
Bonaparte's Gull	*Larus philadelphia*	migrant	migrant
Boreal Chickadee	*Parus hudsonicus*	yearlong	yearlong
Boreal Owl	*Aegolius funereus*	yearlong	yearlong
Boreal Toad (Western)	*Bufo boreas boreas*	yearlong	yearlong
Brant	*Branta bernicla*	no record	accidental
Brewer's Blackbird	*Euphagus cyanocephalus*	seasonal	seasonal
Brewer's Sparrow	*Spizella breweri*	seasonal	no record
Broad-Tailed Hummingbird	*Selasphorus playcercus*	seasonal	seasonal
Brown Creeper	*Certhia americana*	yearlong	yearlong
Brown-Headed Cowbird	*Molothrus ater*	seasonal	seasonal
Bufflehead	*Bucephala albeola*	yearlong	yearlong
Bullfrog	*Rana catesbeiana*	yearlong	yearlong
Bullock's Oriole	*Icterus bullockii*	seasonal	seasonal

Table 1-10: KIPZ Species List, continued

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
Burrowing Owl	*Speotyto cumicularia*	seasonal	no record
Bushy-Tailed Woodrat	*Neotoma cinerea*	yearlong	yearlong
California Gull	*Laras californicus*	seasonal	seasonal
California Myotis	*Myotis californicus*	seasonal	yearlong
California Quail	*Callipepla californica*	no record	yearlong
Calliope Hummingbird	*Stellula calliope*	seasonal	seasonal
Canada Goose	*Branta canadensis*	yearlong	yearlong
Canada Lynx	*Felis lynx*	yearlong	yearlong
Canvasback	*Aythya valisineria*	seasonal	seasonal
Canyon Wren	*Catherpes mexicanus*	accidental	accidental
Cape May Warbler	*Dendroica tigrina*	no record	accidental
Caspian Tern	*Sterna caspia*	migrant	migrant
Cassin's Finch	*Carpodacus cassinii*	yearlong	yearlong
Cassin's Vireo	*Vireo cassinii*	seasonal	seasonal
Cattle Egret	*Bubulcus ibis*	no record	accidental
Cedar Waxwing	*Bombycilla cedrorum*	yearlong	yearlong
Chestnut-Backed Chickadee	*Parus rufescens*	yearlong	yearlong
Chestnut-Sided Warbler	*Dendroica pensylvanica*	accidental	no records
Chipping Sparrow	*Spizella passerina*	seasonal	seasonal
Cinnamon Teal	*Anas cyanoptera*	seasonal	seasonal
Clark's Grebe	*Aechmophorus clarkii*	no record	seasonal
Clark's Nutcracker	*Nucifraga columbiana*	yearlong	yearlong
Clay-Colored Sparrow	*Spizella pallida*	seasonal	accidental
Cliff Swallow	*Hirundo pyrrhonota*	seasonal	seasonal
Coeur D'alene Salamander	*Plethodon idahoensis*	yearlong	yearlong
Columbian Ground Squirrel	*Spermophilus columbianus*	yearlong	yearlong
Columbian Sharp-Tailed Grouse	*Tympanuchus phasianellus*	yearlong	extirpated
Common Garter Snake	*Thamnophis sirtalis*	yearlong	yearlong
Common Goldeneye	*Bucephala clangula*	yearlong	yearlong
Common Grackle	*Quiscalus quiscula*	transient	transient
Common Loon	*Gavia immer*	seasonal	seasonal
Common Merganser	*Mergus merganser*	yearlong	yearlong
Common Nighthawk	*Chordeiles minor*	seasonal	seasonal
Common Poorwill	*Phalaenoptilus nuttallii*	no record	seasonal
Common Raven	*Corvus corax*	yearlong	yearlong

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
Common Redpoll	*Carduelis flammea*	seasonal	seasonal
Common Snipe	*Gallinago callinago*	seasonal	seasonal
Common Tern	*Sterna hirundo*	migrant	seasonal
Common Yellowthroat	*Geothlypis trichas*	seasonal	seasonal
Cooper's Hawk	*Accipiter cooperii*	yearlong	yearlong
Cordilleran Flycatcher	*Empidonax occidentalis*	seasonal	seasonal
Coyote	*Canis latrans*	yearlong	yearlong
Dark-Eyed Junco	*Junco hyemalis*	yearlong	yearlong
Deer Mouse	*Peromyscus maniculatus*	yearlong	yearlong
Double-Crested Cormorant	*Phalacrocorax auritus*	transient	seasonal
Downy Woodpecker	*Picoides pubescensI*	yearlong	yearlong
Dusky Flycatcher	*Empidonax oberholseri*	seasonal	seasonal
Eared Grebe	*Podiceps nigricollis*	seasonal	seasonal
Eastern Kingbird	*Tyrannus tyrannus*	seasonal	seasonal
Elk	*Cervus elaphus nelsoni*	yearlong	yearlong
Ermine (Short-Tailed Weasel)	*Mustela erminea*	yearlong	yearlong
Eurasian Wigeon	*Anas penelope*	transient	transient
European Starling	*Sturnus vulgaris*	yearlong	yearlong
Evening Grosbeak	*Coccothraustes vespertinus*	yearlong	yearlong
Ferruginous Hawk	*Buteo regalis*	transient	no record
Fisher	*Martes pennanti*	yearlong	yearlong
Flammulated Owl	*Otus flammeolus*	seasonal	seasonal
Forster's Tern	*Sterna forsteri*	no record	transient
Fox Sparrow	*Passerella iliaca*	seasonal	seasonal
Franklin's Gull	*Larus pipixcan*	no record	transient
Fringed Myotis	*Myotis thysanodes*	no record	seasonal
Gadwall	*Anas strepera*	seasonal	seasonal
Glaucous Gull	*Larus hyperboreus*	no record	accidental
Glaucous-Winged Gull	*Larus glaucescens*	no record	accidental
Golden Eagle	*Aquila chrysaetos*	yearlong	yearlong
Golden-Crowned Kinglet	*Regulus satrapa*	yearlong	yearlong
Golden-Crowned Sparrow	*Zonotrichia atricapilla*	accidental	no record
Golden-Mantled Ground Squirrel	*Spermophilus lateralis*	yearlong	yearlong
Gopher Snake	*Pituophis cantenifer*	yearlong	yearlong

Table 1-10: KIPZ Species List, continued

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
Grasshopper Sparrow	*Ammodramus savannarum*	seasonal	no record
Gray Catbird	*Dumetella carolinensis*	seasonal	seasonal
Gray Jay	*Perisoreus canadensis*	yearlong	yearlong
Gray Partridge	*Perdix perdix*	yearlong	yearlong
Gray Wolf	*Canis lupus*	yearlong	yearlong
Gray-Crowned Rosy Finch	*Leucosticte tephrocotis*	yearlong	yearlong
Great Blue Heron	*Ardes herodias*	yearlong	yearlong
Great Egret	*Casmerodius albus*	no record	accidental
Great Gray Owl	*Strix nebulosa*	yearlong	yearlong
Great Horned Owl	*Bubo virginianus*	yearlong	yearlong
Greater Scaup	*Aythya marila*	seasonal	transient
Greater White-Fronted Goose	*Anser albifrons*	no record	migrant
Greater Yellowlegs	*Tringa melanoleuca*	migrant	migrant
Green-Winged Teal	*Anas crecca*	seasonal	seasonal
Grizzly Bear	*Ursus arctos horribilis*	yearlong	yearlong
Gyrfalcon	*Falco rusticolus*	seasonal	seasonal
Hairy Woodpecker	*Picoides villosus*	yearlong	yearlong
Hammond's Flycatcher	*Empidonax hammondii*	seasonal	seasonal
Harlequin Duck	*Histrionicus histrionicus*	seasonal	seasonal
Harris' Sparrow	*Zonotrichia querula*	seasonal	transient
Hermit Thrush	*Catharus guttatus*	seasonal	seasonal
Herring Gull	*Larus argentatus*	yearlong	yearlong
Hoary Bat	*Lasiurus cinerus*	seasonal	seasonal
Hoary Marmot	*Marmota caligata*	yearlong	yearlong
Hoary Redpoll	*Carduelis hornemanni*	seasonal	seasonal
Hooded Merganser	*Lophodytes cucullatus*	yearlong	yearlong
Horned Grebe	*Podiceps auritus*	yearlong	yearlong
Horned Lark	*Eremophila alpestris*	yearlong	yearlong
House Finch	*Carpodactus mexicanus*	yearlong	yearlong
House Mouse	*Mus musculus*	yearlong	yearlong
House Sparrow	*Passer domesticus*	yearlong	yearlong
House Wren	*Troglodytes aedon*	seasonal	seasonal
Iceland Gull	*Larus glaucoides*	no record	accidental
Idaho Giant Salamander	*Dicamptodon aterrimus*	no record	yearlong
Killdeer	*Chardrius vociferus*	seasonal	seasonal
Lapland Longspur	*Calcarius lapponicus*	seasonal	seasonal
Lark Bunting	*Cclamospiza melanocorys*	transient	no record
Lark Sparrow	*Chondestes grammacus*	seasonal	transient
Lazuli Bunting	*Passerina amoena*	seasonal	seasonal
Le Conte's Sparrow	*Ammodramus leconteii*	seasonal	no record
Least Flycatcher	*Empidonax minimus*	seasonal	seasonal
Least Sandpiper	*Calidris minutilla*	migrant	migrant
Least Tern	*Sterna antillarum*	no record	accidental
Lesser Scaup	*Aythya affinis*	yearlong	yearlong
Lesser Yellowlegs	*Tringa flavipes*	migrant	migrant
Lewis' Woodpecker	*Memanerpes lewis*	yearlong	seasonal
Lincoln's Sparrow	*Melospiza lincolnii*	seasonal	seasonal
Little Blue Heron	*Egretta caerulea*	no record	accidental
Little Brown Myotis	*Myotis lucifugus*	seasonal	yearlong
Little Gull	*Larus minutus*	no record	accidental
Loggerhead Shrike	*Lanius ludovicianus*	transient	transient
Long-Billed Curlew	*Numenius americanus*	seasonal	seasonal
Long-Billed Dowitcher	*Limnodromus scolopaceus*	transient	transient
Long-Eared Myotis	*Myotis evotis*	seasonal	yearlong
Long-Eared Owl	*Asio otus*	yearlong	yearlong
Long-Legged Myotis	*Myotis volans*	seasonal	yearlong
Long-Tailed Duck	*Clangula hyemalis*	no record	accidental
Long-Tailed Vole	*Microtus longicaudus*	yearlong	yearlong
Long-Tailed Weasel	*Mustela frenata*	yearlong	yearlong
Long-Toed Salamander	*Ambystoma macrodactylum*	yearlong	yearlong
Macgillivray's Warbler	*Opopornis tolmiei*	seasonal	seasonal
Mallard	*Anas platyrhynchos*	yearlong	yearlong
Marbled Godwit	*Limosa fedoa*	migrant	migrant
Marsh Wren	*Cistithorus palustris*	yearlong	seasonal
Masked Shrew	*Sorex cinereus*	yearlong	yearlong
Meadow Vole	*Microtus pennsylvanicus*	yearlong	yearlong
Merlin	*Falco columbarius*	yearlong	yearlong
Mew Gull	*Larus canus*	no record	accidental
Mink	*Mustela vison*	yearlong	yearlong
Montane Shrew	*Sorex monticolus*	yearlong	yearlong
Montane Vole	*Microtus montanus*	yearlong	yearlong

Table 1-10: KIPZ Species List, continued

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
Montane Vole	*Microtus montanus*	yearlong	yearlong
Moose	*Alces alces*	yearlong	yearlong
Mountain Bluebird	*Sialia currucoides*	seasonal	seasonal
Mountain Chickadee	*Parus gambeli*	yearlong	yearlong
Mountain Goat	*Oreamnos americanus*	yearlong	yearlong
Mountain Lion	*Felis concolor*	yearlong	yearlong
Mourning Dove	*Zenaida macroura*	yearlong	yearlong
Mule Deer	*Odocoileus hemionus*	yearlong	yearlong
Muskrat	*Ondatra zibethicus*	yearlong	yearlong
Nashville Warbler	*Vermivora ruficapilla*	seasonal	seasonal
Northern Alligator Lizard	*Elgaria coerulea*	yearlong	yearlong
Northern Bog Lemming	*Synaptomys borealis*	yearlong	yearlong
Northern Flicker	*Colaptes auratus*	yearlong	yearlong
Northern Flying Squirrel	*Glaucomys sabrinus*	yearlong	yearlong
Northern Goshawk	*Accipter gentilis*	yearlong	yearlong
Northern Harrier	*Circus cyaneus*	yearlong	yearlong
Northern Hawk-Owl	*Surnia ulula*	yearlong	yearlong
Northern Leopard Frog	*Rana pipiens*	yearlong	extirpated
Northern Mockingbird	*Mimus polyglottos*	no record	accidental
Northern Pintail	*Anas acuta*	yearlong	yearlong
Northern Pocket Gopher	*Thymomys talpoides*	yearlong	yearlong
Northern Pygmy-Owl	*Glaucidium gnoma*	yearlong	yearlong
Northern River Otter	*Lutra canadensis*	yearlong	yearlong
Northern Rough-Winged Swallow	*Stelgidopteryx serripennis*	seasonal	seasonal
Northern Saw-Whet Owl	*Aegolius acadicus*	yearlong	yearlong
Northern Shoveler	*Anas clypeata*	seasonal	seasonal
Northern Shrike	*Llanius excubitor*	seasonal	seasonal
Northern Waterthrush	*Seiurus noveboracensis*	seasonal	seasonal
Olive-Sided Flycatcher	*Contopus borealis*	seasonal	seasonal
Orange-Crowned Warbler	*Vermivora celata*	seasonal	seasonal
Osprey	*Pandion haliaetus*	seasonal	seasonal
Pacific Chorus Frog	*Pseudacris regilla*	yearlong	yearlong
Painted Turtle	*Chrysemys picta*	yearlong	yearlong
Palm Warbler	*Dendroica palmarum*	accidental	accidental
Parasitic Jaeger	*Stercorarius parasiticus*	no record	accidental
Pectoral Sandpiper	*Calidris melanotos*	migrant	migrant
Peregrine Falcon	*Falco peregrinus*	seasonal	seasonal
Pied-Billed Grebe	*Ppdilymbus podiceps*	yearlong	yearlong
Pileated Woodpecker	*Dryocopus pileatus*	yearlong	yearlong
Pine Grosbeak	*Pinicola enucleator*	yearlong	yearlong
Pine Siskin	*Carduelis pinus*	yearlong	yearlong
Pinyon Jay	*Gymnorhinus cyanocephalus accidental*	no record	
Porcupine	*Erethizon dorsatum*	yearlong	yearlong
Prairie Falcon	*Falco mexicanus*	yearlong	yearlong
Preble's Shrew	*Sorex preblei*	yearlong	yearlong
Purple Finch	*Carpodacus purpureus*	transient	no record
Purple Martin	*Progne subis*	no record	accidental
Pygmy Nuthatch	*Sitta pygmaea*	yearlong	yearlong
Pygmy Shrew	*Sorex hoyi*	yearlong	yearlong
Raccoon	*Procyon lotor*	yearlong	yearlong
Racer	*Coluber constrictor*	yearlong	yearlong
Red Crossbill	*Loxia curvirostra*	yearlong	yearlong
Red Fox	*Vulpes vulpes*	yearlong	yearlong
Red Phalarope	*Phalaropus fulicaria*	no record	accidental
Red Squirrel	*Tamiasciurus hudsonicus*	yearlong	yearlong
Red-Bellied Woodpecker	*Melanerpes carolinus*	no record	accidental
Red-Breasted Merganser	*Mergus serrator*	yearlong	yearlong
Red-Breasted Nuthatch	*Sitta canadensis*	yearlong	yearlong
Red-Eyed Vireo	*Vireo olivaceus*	seasonal	seasonal
Redhead	*Aythya americana*	yearlong	yearlong
Red-Naped Sapsucker	*Sphyrapicus nuchalis*	seasonal	seasonal
Red-Necked Grebe	*Podiceps grisegena*	yearlong	yearlong
Red-Necked Phalarope	*Phalaropus lobatus*	no record	migrant
Red-Tailed Chipmunk	*Tamias ruficaudus*	yearlong	yearlong
Red-Tailed Hawk	*Buteo jamaicensis*	yearlong	yearlong
Red-Throated Loon	*Gavia stellata*	no record	migrant
Red-Winged Blackbird	*Agelaius phoeniceus*	yearlong	yearlong
Ring-Billed Gull	*Larus delawarensis*	yearlong	yearlong
Ring-Necked Duck	*Aythya collaris*	yearlong	yearlong

Table 1-10: KIPZ Species List, continued

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
Ring-Necked Pheasant	*Phasianus colchicus*	yearlong	yearlong
Rock Dove	*Columba livia*	yearlong	yearlong
Rock Wren	*Salpinctes obsoletus*	seasonal	seasonal
Rose-Breasted Grosbeak	*Pheucticus ludovicianus*	no record	accidental
Ross' Goose	*Chen rossii*	no record	migrant
Rough-Legged Hawk	*Buto lagopus*	seasonal	seasonal
Rubber Boa	*Charina bottae*	yearlong	yearlong
Ruby-Crowned Kinglet	*Regulus calendula*	yearlong	yearlong
Ruddy Duck	*Oxyura jamaicensis*	yearlong	yearlong
Ruddy Turnstone	*Arenaria interpres*	no record	accidental
Ruffed Grouse	*Bonasa umbellus*	yearlong	yearlong
Rufous Hummingbird	*Selasphorus rufus*	seasonal	seasonal
Rusty Blackbird	*Euphagus carolinus*	accidental	accidental
Sabine's Gull	*Xema sabini*	accidental	accidental
Sanderling	*Calidris alba*	no record	migrant
Sandhill Crane	*Grus canadensis*	seasonal	seasonal
Savannah Sparrow	*Passerculus sandwichensis*	seasonal	seasonal
Say's Phoebe	*Sayornis saya*	seasonal	seasonal
Semipalmated Sandpiper	*Calidris pusilla*	migrant	migrant
Sharp-Shinned Hawk	*Accipiter striatus*	yearlong	yearlong
Short-Billed Dowitcher	*Limnodromus griseus*	no record	migrant
Short-Eared Owl	*Asio flammeus*	yearlong	yearlong
Silver-Haired Bat	*Lasionycteris noctivagans*	seasonal	yearlong
Snow Bunting	*Plectrophenax nivalis*	seasonal	seasonal
Snow Goose	*Chen caerulescens*	migrant	migrant
Snowshoe Hare	*Lepus americanus*	yearlong	yearlong
Snowy Egret	*Egretta thula*	no record	accidental
Snowy Owl	*Nyctea scandiaca*	seasonal	seasonal
Solitary Sandpiper	*Tringa solitaria*	migrant	migrant
Song Sparrow	*Melospiza melodia*	yearlong	yearlong
Sora	*Porzana carolina*	seasonal	seasonal
Southern Red-Backed Vole	*Clethrionomys gapperi*	yearlong	yearlong
Spotted Frog (Columbian)	*Rana luteiventris*	yearlong	yearlong
Spotted Sandpiper	*Actitis macularia*	seasonal	seasonal
Spotted Towhee	*Pipilo maculatus*	yearlong	yearlong
Spruce Grouse	*Dendragapus canadensis*	yearlong	yearlong

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
Steller's Jay	*Cyanocitta stelleri*	yearlong	yearlong
Stilt Sandpiper	*Calidris himantopus*	migrant	accidental
Striped Skunk	*Mephitis mephitis*	yearlong	yearlong
Surf Scoter	*Melanitta perspicillata*	no record	accidental
Swainson's Hawk	*Bueto swainsoni*	transient	transient
Swainson's Thrush	*Catharus ustulatus*	seasonal	seasonal
Swamp Sparrow	*Melospiza georgiana*	no record	accidental
Tailed Frog	*Ascaphus truei*	yearlong	yearlong
Tennessee Warbler	*Vermivora peregrina*	seasonal	migrant
Thayer's Gull	*Larus thayeri*	no record	migrant
Three-Toed Woodpecker	*Picoides triadactylus*	yearlong	yearlong
Tiger Salamander	*Aambystoma trigrinum*	yearlong	yearlong
Townsend's Big-Eared Bat	*Plecotus townsendii*	seasonal	yearlong
Townsend's Solitaire	*Myadestes townsendi*	yearlong	yearlong
Townsend's Warbler	*Dendroica townsendi*	seasonal	seasonal
Tree Swallow	*Tachycineta bocolor*	seasonal	seasonal
Trumpeter Swan	*Cygnus buccinator*	no record	migrant
Tundra Swan	*Cygnus columbianus*	migrant	migrant
Turkey Vulture	*Cathartes aura*	seasonal	seasonal
Upland Sandpiper	*Bartramia longicauda*	transient	transient
Vagrant Shrew	*Sorex vagrans*	yearlong	yearlong
Varied Thrush	*Ixoreus naevius*	yearlong	yearlong
Vaux's Swift	*Chaetura vauxi*	seasonal	seasonal
Veery	*Catharus fuscescens*	seasonal	seasonal
Vesper Sparrow	*Pooecetes gramineus*	seasonal	seasonal
Violet-Green Swallow	*Tachycineta thalassina*	seasonal	seasonal
Virginia Rail	*Rallus limicola*	seasonal	seasonal
Warbling Vireo	*Vireo gilvus*	seasonal	seasonal
Water Shrew	*Sorex palustris*	yearlong	yearlong
Water Vole	*Microtus richardsonii*	yearlong	yearlong
Western Bluebird	*Sialia mexicana*	seasonal	seasonal
Western Grebe	*Aechmophorus occidentalis*	yearlong	yearlong
Western Heather Vole	*Phenacomys intermedius*	yearlong	yearlong
Western Jumping Mouse	*Zapus princeps*	yearlong	yearlong
Western Kingbird	*Tyrannus verticalis*	seasonal	seasonal
Western Meadowlark	*Sturnella neglecta*	seasonal	seasonal

Table 1-10: KIPZ Species List, continued

COMMON NAME	SCIENTIFIC NAME	KNF status	IPNFs status
Western Sandpiper	*Calidrus mauri*	no record	migrant
Western Screech-Owl	*Otus kennicottii*	no record	yearlong
Western Skink	*Eumeces skiltonianus*	yearlong	yearlong
Western Small-Footed Myotis	*Myotis ciliolabrum*	seasonal	yearlong
Western Tanager	*Piranga ludoviciana*	seasonal	seasonal
Western Terrestrial Garter Snake	*Thamnophis elegans*	yearlong	yearlong
Western Wood-Pewee	*Contopus sordidulus*	seasonal	seasonal
Whip-Poor-Will	*Caprimulgus vociferus*	accidental	no record
White-Breasted Nuthatch	*Sittta carolinensis*	yearlong	yearlong
White-Crowned Sparrow	*Zonotrichia leucophrys*	yearlong	yearlong
White-Faced Ibis	*Plegadis chihi*	accidental	transient
White-Headed Woodpecker	*Picoides albolarvatus*	accidental	yearlong
White-Tailed Deer	*Odocoileus virginianus*	yearlong	yearlong
White-Tailed Ptarmigan	*Lagopus leucurus*	yearlong	yearlong
White-Throated Sparrow	*Zonotrichia albicollis*	transient	transient
White-Throated Swift	*Aeronautes saxatalis*	seasonal	seasonal
White-Winged Crossbill	*Loxia leucoptera*	yearlong	yearlong
White-Winged Scoter	*Melanitta fusca*	no record	accidental
Wild Turkey	*Meleagris gallopavo*	yearlong	yearlong
Williamson's Sapsucker	*Sphyrapicus thyroideus*	seasonal	seasonal
Willow Flycatcher	*Empidonax traillii*	seasonal	seasonal
Wilson's Phalarope	*Phalaropus tricolor*	seasonal	seasonal
Wilson's Warbler	*Wilsona pusilla*	seasonal	seasonal
Winter Wren	*Troglodytes troglodytes*	yearlong	yearlong
Wolverine	*Gulo gulo*	yearlong	yearlong
Wood Duck	*Aix sponsa*	seasonal	seasonal
Wood Frog	*Rana sylvatica*	no record	extirpated
Woodland Caribou	*Rangifer tarandus caribou*	extirpated	yearlong
Yellow Warbler	*Dendroica petechia*	seasonal	seasonal
Yellow-Bellied Marmot	*Marmota flaviventris*	yearlong	yearlong
Yellow-Billed Cuckoo	*Coccyzus americanus*	no record	accidental
Yellow-Billed Loon	*Gavia adamsii*	no record	migrant
Yellow-Breasted Chat	*Icteria virens*	seasonal	seasonal
Yellow-Headed Blackbird	*Xanthocephalus*	seasonal	seasonal
Yellow-Pine Chipmunk	*Tamias amoenus*	yearlong	yearlong
Yellow-Rumped Warbler	*Dendroica coronata*	seasonal	seasonal
Yellow-Throated Warbler	*Dendroica dominica*	no record	accidental
Yuma Myotis	*Myotis yumanensis*	seasonal	seasonal

Table 1-11: Species Associated with Warm/Dry Habitats

COMMON NAME	SCIENTIFIC NAME
American Badger	*Taxidea taxus*
American Coot	*Fulica americana*
American Crow	*Corvus brachyrhynchos*
American Dipper	*Cinclus mexicanus*
American Goldfinch	*Carduelis tristis*
American Kestrel	*Falco sparverius*
American Redstart	*Setopha garuticilla*
American Robin	*Turdus migratorius*
American Tree Sparrow	*Spizella arborea*
American Wigeon	*Anas american*
Bald Eagle	*Haliaeetus leucocphalus*
Bank Swallow	*Riparia riparia*
Barn Owl	*Tyto alba*
Barred Owl	*Strix varia*
Belted Kingfisher	*Ceryle alcyon*
Big Brown Bat	*Eptesicus fuscus*
Bighorn Sheep	*Ovis canadensis*
Black Bear	*Ursus americanus*
Black-Backed Woodpecker	*Picoides arcticus*
Black-Billed Magpie	*Pica pica*
Black-Capped Chickadee	*Parus atricapillus*
Black-Chinned Hummingbird	*Archilochus alexandri*
Black-Headed Grosbeak	*Pheucticus melanocephalus*
Blue Grouse	*Dendragapus obscurus*
Blue Jay	*Cyanocitta cristata*
Blue-Winged Teal	*Anas discors*
Bobcat	*Felis rufus*
Bonaparte's Gull	*Larus philadelphia*
Boreal Toad (Western)	*Bufo boreas boreas*
Brewer's Sparrow	*Spizella breweri*
Broad-Tailed Hummingbird	*Selasphorus playcercus*
Brown Creeper	*Certhia americana*
Brown-Headed Cowbird	*Molothrus ater*
Bufflehead	*Bucephala albeola*
Bullfrog	*Rana catesbeiana*
Burrowing Owl	*Speotyto cumicularia*
Bushy-Tailed Woodrat	*Neotoma cinerea*
California Gull	*Laras californicus*
California Myotis	*Myotis californicus*
Calliope Hummingbird	*Stellula calliope*
Canada Goose	*Branta canadensis*
Canyon Wren	*Catherpes mexicanus*
Caspian Tern	*Sterna caspia*
Cassin's Finch	*Carpodacus cassinii*
Cassin's Vireo	*Vireo casinii*
Chestnut-Backed Chickadee	*Parus rufescens*
Chipping Sparrow	*Spizella passerina*
Cinnamon Teal	*Anas cyanoptera*
Clark's Grebe	*Aechmophorus clarkii*
Clark's Nutcracker	*Nucifraga columbiana*
Clay-Colored Sparrow	*Spizella pallida*
Cliff Swallow	*Hirundo pyrrhonota*
Columbian Ground Squirrel	*Spermophilus columbianus*
Columbian Sharp-Tailed Grouse	*Tympanuchus phasianellus*
Common Garter Snake	*Thamnophis sirtalis*

COMMON NAME	SCIENTIFIC NAME
Common Goldeneye	*Bucephala clangula*
Common Grackle	*Quiscalus quiscula*
Common Loon	*Gavia immer*
Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*
Common Poorwill	*Phalaenoptilus nuttallii*
Common Raven	*Corvus corax*
Common Redpoll	*Carduelis flammea*
Common Snipe	*Gallinago callinago*
Common Tern	*Sterna hirundo*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	*Aaccipiter cooperii*
Coyote	*Canis latrans*
Dark-Eyed Junco	*Junco hyemalis*
Deer Mouse	*Peromyscus maniculatus*
Double-Crested Cormorant	*Phalacrocorax auritus*
Downy Woodpecker	*Picoides pubescensI*
Dusky Flycatcher	*Empidonax oberholseri*
Eared Grebe	*Podiceps nigricollis*
Eastern Kingbird	*Tyrannus tyrannus*
Elk	*Cervus elaphus nelsoni*
Ermine (Short-Tailed Weasel)	*Mustela erminea*
Eurasian Wigeon	*Anas penelope*
European Starling	*Sturnus vulgaris*
Evening Grosbeak	*Coccothraustes vespertinus*
Fisher	*Martes pennanti*
Flammulated Owl	*Otus flammeolus*
Forster's Tern	*Sterna forsteri*
Fox Sparrow	*Passerella iliaca*
Franklin's Gull	*Larus pipixcan*
Fringed Myotis	*Myotis thysanodes*
Gadwall	*Anas strepera*
Golden Eagle	*Aquila chrysaetos*
Golden-Crowned Kinglet	*Regulus satrapa*
Golden-Mantled Ground Squirrel	*Spermophilus lateralis*
Gopher Snake	*Pituophis cantenifer*
Gray Catbird	*Dumetella carolinensis*
Gray Jay	*Perisoreus canadensis*
Gray Partridge	*Perdix perdix*
Gray Wolf	*Canis lupus*
Great Blue Heron	*Ardes herodias*
Great Gray Owl	*Strix nebulosa*
Great Horned Owl	*Bubo virginianus*
Greater Scaup	*Aythya marila*
Greater Yellowlegs	*Tringa melanoleuca*
Green-Winged Teal	*Anas crecca*
Grizzly Bear	*Ursus arctos horribilis*
Gyrfalcon	*Falco rusticolus*
Hairy Woodpecker	*Picoides villosus*
Hammond's Flycatcher	*Empidonax hammondii*
Harris' Sparrow	*Zonotrichia querula*
Hermit Thrush	*Catharus guttatus*
Herring Gull	*Larus argentatus*
Hoary Bat	*Lasiurus cinerus*

Table 1-11: Species Associated with Warm/Dry Habitats, continued

COMMON NAME	SCIENTIFIC NAME
Hoary Redpoll	*Carduelis hornemanni*
Hooded Merganser	*Lophodytes cucullatus*
Horned Grebe	*Podiceps auritus*
Horned Lark	*Eremophila alpestris*
House Finch	*Carpodactus mexicanus*
House Mouse	*Mus musculus*
House Sparrow	*Passer domesticus*
House Wren	*Troglodytes aedon*
Killdeer	*Chardrius vociferus*
Lapland Longspur	*Calcarius lapponicus*
Lark Sparrow	*Chondestes grammacus*
Lazuli Bunting	*Passerina amoena*
Le Conte's Sparrow	*Ammodramus leconteii*
Least Flycatcher	*Empidonax minimus*
Lesser Scaup	*Aythya affinis*
Lesser Yellowlegs	*Tringa flavipes*
Lewis' Woodpecker	*Memanerpes lewis*
Little Brown Myotis	*Myotis lucifugus*
Long-Billed Curlew	*Numenius americanus*
Long-Billed Dowitcher	*Limnodromus scolopaceus*
Long-Eared Myotis	*Myotis evotis*
Long-Eared Owl	*Asio otus*
Long-Legged Myotis	*Myotis volans*
Long-Tailed Vole	*Microtus longicaudus*
Long-Tailed Weasel	*Mustela frenata*
Long-Toed Salamander	*Ambystoma macrodactylum*
Macgillivray's Warbler	*Opopornis tolmiei*
Mallard	*Anas platyrhynchos*
Marsh Wren	*Cistithorus palustris*
Masked Shrew	*Sorex cinereus*
Meadow Vole	*Microtus pennsylvanicus*
Merlin	*Falco columbarius*
Mink	*Mustela vison*
Moose	*Alces alces*
Mountain Bluebird	*Sialia currucoides*
Mountain Chickadee	*Parus gambeli*
Mountain Lion	*Felis concolor*
Mourning Dove	*Zenaida macroura*
Mule Deer	*Odocoileus hemionus*
Muskrat	*Ondatra zibethicus*
Nashville Warbler	*Vermivora ruficapilla*
Northern Alligator Lizard	*Elgaria coerulea*
Northern Flicker	*Colaptes auratus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Northern Goshawk	*Accipter gentilis*
Northern Harrier	*Circus cyaneus*
Northern Leopard Frog	*Rana pipiens*
Northern Pintail	*Anas acuta*
Northern Pocket Gopher	*Thymomys talpoides*
Northern Pygmy-Owl	*Glaucidium gnoma*
Northern River Otter	*Lutra canadensis*
Northern Rough-Winged Swallow	*Stelgidopteryx serripennis*
Northern Saw-Whet Owl	*Aegolius acadicus*
Northern Shoveler	*Anas clypeata*
Northern Shrike	*Llanius excubitor*
Northern Waterthrush	*Seiurus noveboracensis*

COMMON NAME	SCIENTIFIC NAME
Olive-Sided Flycatcher	*Contopus borealis*
Osprey	*Pandion haliaetus*
Pacific Chorus Frog	*Pseudacris regilla*
Painted Turtle	*Chrysemys picta*
Pectoral Sandpiper	*Calidris melanotos*
Peregrine Falcon	*Falco peregrinus*
Pied-Billed Grebe	*Ppdilymbus podiceps*
Pileated Woodpecker	*Dryocopus pileatus*
Porcupine	*Erethizon dorsatum*
Prairie Falcon	*Falco mexicanus*
Pygmy Nuthatch	*Sitta pygmaea*
Pygmy Shrew	*Sorex hoyi*
Raccoon	*Procyon lotor*
Racer	*Coluber constrictor*
Red Crossbill	*Loxia curvirostra*
Red Fox	*Vulpes vulpes*
Red Squirrel	*Tamiasciurus hudsonicus*
Red-Breasted Merganser	*Mergus serrator*
Red-Breasted Nuthatch	*Sitta canadensis*
Red-Eyed Vireo	*Vireo olivaceus*
Redhead	*Aythya americana*
Red-Naped Sapsucker	*Sphyrapicus nuchalis*
Red-Necked Grebe	*Podiceps grisegena*
Red-Tailed Chipmunk	*Tamias ruficaudus*
Red-Tailed Hawk	*Buteo jamaicensis*
Red-Winged Blackbird	*Agelaius phoeniceus*
Ring-Billed Gull	*Larus delawarensis*
Ring-Necked Duck	*Aythya collaris*
Ring-Necked Pheasant	*Phasianus colchicus*
Rock Dove	*Columba livia*
Rock Wren	*Salpinctes obsoletus*
Rough-Legged Hawk	*Buto lagopus*
Rubber Boa	*Charina bottae*
Ruby-Crowned Kinglet	*Regulus calendula*
Ruddy Duck	*Oxyura jamaicensis*
Ruffed Grouse	*Bonasa umbellus*
Rufous Hummingbird	*Selasphorus rufus*
Say's Phoebe	*Sayornis saya*
Sharp-Shinned Hawk	*Accipiter striatus*
Short-Eared Owl	*Asio flammeus*
Silver-Haired Bat	*Lasionycteris noctivagans*
Snow Bunting	*Plectrophenax nivalis*
Snowy Owl	*Nyctea scandiaca*
Song Sparrow	*Melospiza melodia*
Sora	*Porzana carolina*
Spotted Sandpiper	*Actitis macularia*
Spotted Towhee	*Pipilo maculatus*
Striped Skunk	*Mephitis mephitis*
Swainson's Hawk	*Bueto swainsoni*
Swainson's Thrush	*Catharus ustulatus*
Three-Toed Woodpecker	*Picoides triadactylus*
Tiger Salamander	*Aambystoma trigrinum*
Townsend's Solitaire	*Myadestes townsendi*
Townsend's Warbler	*Dendroica townsendi*
Tree Swallow	*Tachycineta bocolor*
Turkey Vulture	*Cathartes aura*
Vagrant Shrew	*Sorex vagrans*

Table 1-11: Species Associated with Warm/Dry Habitats, continued

COMMON NAME	SCIENTIFIC NAME
Varied Thrush	*Ixoreus naevius*
Vesper Sparrow	*Pooecetes gramineus*
Violet-Green Swallow	*Tachycineta thalassina*
Warbling Vireo	*Vireo gilvus*
Western Bluebird	*Sialia mexicana*
Western Grebe	*Aechmophorus occidentalis*
Western Jumping Mouse	*Zapus princeps*
Western Kingbird	*Tyrannus verticalis*
Western Meadowlark	*Sturnella neglecta*
Western Screech-Owl	*Otus kennicottii*
Western Skink	*Eumeces skiltonianus*
Western Small-Footed Myotis	*Myotis ciliolabrum*
Western Tanager	*Piranga ludoviciana*
Western Terrestrial Garter Snake	*Thamnophis elegans*
Western Wood-Pewee	*Contopus sordidulus*
White-Breasted Nuthatch	*Sittta carolinensis*
White-Crowned Sparrow	*Zonotrichia leucophrys*
White-Headed Woodpecker	*Picoides albolarvatus*
White-Tailed Deer	*Odocoileus virginianus*
White-Throated Swift	*Aeronautes saxatalis*
Wild Turkey	*Meleagris gallopavo*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Willow Flycatcher	*Empidonax traillii*
Wilson's Warbler	*Wilsona pusilla*
Winter Wren	*Troglodytes troglodytes*
Wood Duck	*Aix sponsa*
Yellow Warbler	*Dendroica petechia*
Yellow-Bellied Marmot	*Marmota flaviventris*
Yellow-Breasted Chat	*Icteria virens*
Yellow-Headed Blackbird	*Xanthocephalus xanthocephalus*
Yellow-Pine Chipmunk	*Tamias amoenus*
Yellow-Rumped Warbler	*Dendroica coronata*
Yuma Myotis	*Myotis yumanensis*

Table 1-12: Species Associated with Old-growth Habitat

COMMON NAME	SCIENTIFIC NAME
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Carduelis tristis*
American Marten	*Martes americana*
Bald Eagle	*Haliaeetus leucocphalus*
Barn Owl	*Tyto alba*
Barred Owl	*Strix varia*
Barrow's Goldeneye	*Bucephala islandica*
Black Bear	*Ursus americanus*
Black-Backed Woodpecker	*Picoides arcticus*
Black-Capped Chickadee	*Parus atricapillus*
Blue Grouse	*Dendragapus obscurus*
Bohemian Waxwing	*Bombycillia garrulus*
Boreal Chickadee	*Parus hudsonicus*
Boreal Owl	*Aegolius funereus*
Brown Creeper	*Certhia americana*
Bufflehead	*Bucephala albeola*
Bullock's Oriole	*Icterus bullockii*
California Myotis	*Myotis californicus*
Canada Lynx	*Felis lynx*
Chestnut-Backed Chickadee	*Parus rufescens*
Clark's Nutcracker	*Nucifraga columbiana*
Coeur D'alene Salamander	*Plethodon idahoensis*
Common Goldeneye	*Bucephala clangula*
Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*
Common Raven	*Corvus corax*
Cooper's Hawk	*Aaccipiter cooperii*
Cordilleran Flycatcher	*Empidonax occidentalis*
Elk	*Cervus elaphus nelsoni*
Evening Grosbeak	*Coccothraustes vespertinus*
Fisher	*Martes pennanti*
Flammulated Owl	*Otus flammeolus*
Golden Eagle	*Aquila chrysaetos*
Golden-Crowned Kinglet	*Regulus satrapa*
Gray Jay	*Perisoreus canadensis*
Great Blue Heron	*Ardes herodias*
Great Gray Owl	*Strix nebulosa*
Great Horned Owl	*Bubo virginianus*
Hairy Woodpecker	*Picoides villosus*
Hammond's Flycatcher	*Empidonax hammondii*
Hermit Thrush	*Catharus guttatus*
Hoary Bat	*Lasiurus cinerus*
Hooded Merganser	*Lophodytes cucullatus*
Lewis' Woodpecker	*Memanerpes lewis*
Long-Eared Myotis	*Myotis evotis*
Long-Eared Owl	*Asio otus*
Long-Legged Myotis	*Myotis volans*
Merlin	*Falco columbarius*
Mink	*Mustela vison*
Mountain Bluebird	*Sialia currucoides*
Mountain Chickadee	*Parus gambeli*

COMMON NAME	SCIENTIFIC NAME
Mourning Dove	*Zenaida macroura*
Mule Deer	*Odocoileus hemionus*
Northern Flicker	*Colaptes auratus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Northern Goshawk	*Accipter gentilis*
Northern Hawk-Owl	*Surnia ulula*
Northern Pygmy-Owl	*Glaucidium gnoma*
Northern Saw-Whet Owl	*Aegolius acadicus*
Olive-Sided Flycatcher	*Contopus borealis*
Osprey	*Pandion haliaetus*
Pileated Woodpecker	*Dryocopus pileatus*
Pine Grosbeak	*Pinicola enucleator*
Pine Siskin	*Carduelis pinus*
Pygmy Nuthatch	*Sitta pygmaea*
Red Crossbill	*Loxia curvirostra*
Red Squirrel	*Tamiasciurus hudsonicus*
Red-Breasted Nuthatch	*Sitta canadensis*
Red-Naped Sapsucker	*Sphyrapicus nuchalis*
Red-Tailed Hawk	*Buteo jamaicensis*
Rough-Legged Hawk	*Buto lagopus*
Ruby-Crowned Kinglet	*Regulus calendula*
Rufous Hummingbird	*Selasphorus rufus*
Silver-Haired Bat	*Lasionycteris noctivagans*
Southern Red-Backed Vole	*Clethrionomys gapperi*
Spruce Grouse	*Dendragapus canadensis*
Steller's Jay	*Cyanocitta stelleri*
Swainson's Hawk	*Bueto swainsoni*
Swainson's Thrush	*Catharus ustulatus*
Tailed Frog	*Ascaphus truei*
Townsend's Big-Eared Bat	*Plecotus townsendii*
Townsend's Solitaire	*Myadestes townsendi*
Townsend's Warbler	*Dendroica townsendi*
Turkey Vulture	*Cathartes aura*
Varied Thrush	*Ixoreus naevius*
Vaux's Swift	*Chaetura vauxi*
Violet-Green Swallow	*Tachycineta thalassina*
Warbling Vireo	*Vireo gilvus*
Western Bluebird	*Sialia mexicana*
Western Screech-Owl	*Otus kennicottii*
Western Small-Footed	*Myotis ciliolabrum*
Western Tanager	*Piranga ludoviciana*
Western Wood-Pewee	*Contopus sordidulus*
White-Breasted Nuthatch	*Sittta carolinensis*
White-Headed Woodpecker	*Picoides albolarvatus*
White-Tailed Deer	*Odocoileus virginianus*
White-Winged Crossbill	*Loxia leucoptera*
Wild Turkey	*Meleagris gallopavo*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Winter Wren	*Troglodytes troglodytes*
Wood Duck	*Aix sponsa*
Woodland Caribou	*Rangifer tarandus caribou*

Table 1-13: Species Associated with Moist Habitats

COMMON NAME	SCIENTIFIC NAME
American Beaver	*Castor canadensis*
American Coot	*Fulica americana*
American Crow	*Corvus brachyrhynchos*
American Dipper	*Cinclus mexicanus*
American Goldfinch	*Carduelis tristis*
American Marten	*Martes americana*
American Redstart	*Setophagaruticilla*
American Robin	*Turdus migratorius*
American Tree Sparrow	*Spizella arborea*
American Wigeon	*Anas american*
Bald Eagle	*Haliaeetus leucocphalus*
Bank Swallow	*Riparia riparia*
Barn Swallow	*Hirundo rustica*
Barred Owl	*Strix varia*
Barrow's Goldeneye	*Bucephala islandica*
Belted Kingfisher	*Ceryle alcyon*
Bewicks Wren	*Thryomanes bewickii*
Big Brown Bat	*Eptesicus fuscus*
Bighorn Sheep	*Ovis canadensis*
Black and White Warbler	*Mniotilta varia*
Black Bear	*Ursus americanus*
Black Swift	*Cypseloides niger*
Black-Backed Woodpecker	*Picoides arcticus*
Black-Billed Magpie	*Pica pica*
Black-Capped Chickadee	*Parus atricapillus*
Black-Chinned Hummingbird	*Archilochus alexandri*
Black-Headed Grosbeak	*Pheucticus melanocephalus*
Blackpoll Warbler	*Dendroica striata*
Blue Jay	*Cyanocitta cristata*
Blue-Winged Teal	*Anas discors*
Bobcat	*Felis rufus*
Bobolink	*Dolichonyx oryzivorus*
Bohemian Waxwing	*Bombycillia garrulus*
Bonaparte's Gull	*Larus philadelphia*
Boreal Toad (Western)	*Bufo boreas boreas*
Brewer's Blackbird	*Euphagus cyanocephalus*
Brown Creeper	*Certhia americana*
Brown-Headed Cowbird	*Molothrus ater*
Bufflehead	*Bucephala albeola*
Bullfrog	*Rana catesbeiana*
Bullock's Oriole	*Icterus bullockii*
Bushy-Tailed Woodrat	*Neotoma cinerea*
California Myotis	*Myotis californicus*
Calliope Hummingbird	*Stellula calliope*
Canada Goose	*Branta canadensis*
Canvasback	*Aythya valisineria*
Cassin's Finch	*Carpodacus cassinii*
Cassin's Vireo	*Vireo cassinii*
Chestnut-Backed Chickadee	*Parus rufescens*
Chestnut-Sided Warbler	*Dendroica pensylvanica*
Chipping Sparrow	*Spizella passerina*

COMMON NAME	SCIENTIFIC NAME
Cinnamon Teal	*Anas cyanoptera*
Clark's Grebe	*Aechmophorus clarkii*
Clark's Nutcracker	*Nucifraga columbiana*
Clay-Colored Sparrow	*Spizella pallida*
Cliff Swallow	*Hirundo pyrrhonota*
Coeur D'alene Salamander	*Plethodon idahoensis*
Columbian Ground Squirrel	*Spermophilus columbianus*
Columbian Sharp-Tailed Grouse	*Tympanuchus phasianellus*
Common Garter Snake	*Thamnophis sirtalis*
Common Goldeneye	*Bucephala clangula*
Common Grackle	*Quiscalus quiscula*
Common Loon	*Gavia immer*
Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*
Common Poorwill	*Phalaenoptilus nuttallii*
Common Raven	*Corvus corax*
Common Redpoll	*Carduelis flammea*
Common Snipe	*Gallinago callinago*
Common Tern	*Sterna hirundo*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	*Aaccipiter cooperii*
Cordilleran Flycatcher	*Empidonax occidentalis*
Coyote	*Canis latrans*
Dark-Eyed Junco	*Junco hyemalis*
Deer Mouse	*Peromyscus maniculatus*
Downy Woodpecker	*Picoides pubescensI*
Dusky Flycatcher	*Empidonax oberholseri*
Eared Grebe	*Podiceps nigricollis*
Eastern Kingbird	*Tyrannus tyrannus*
Elk	*Cervus elaphus nelsoni*
Ermine (Short-Tailed Weasel)	*Mustela erminea*
Eurasian Wigeon	*Anas penelope*
European Starling	*Sturnus vulgaris*
Evening Grosbeak	*Coccothraustes vespertinus*
Fisher	*Martes pennanti*
Flammulated Owl	*Otus flammeolus*
Fox Sparrow	*Passerella iliaca*
Franklin's Gull	*Larus pipixcan*
Fringed Myotis	*Myotis thysanodes*
Gadwall	*Anas strepera*
Golden Eagle	*Aquila chrysaetos*
Golden-Crowned Kinglet	*Regulus satrapa*
Golden-Mantled Ground Squirrel	*Spermophilus lateralis*
Gopher Snake	*Pituophis cantenifer*
Gray Catbird	*Dumetella carolinensis*
Gray Jay	*Perisoreus canadensis*
Gray Wolf	*Canis lupus*
Great Blue Heron	*Ardes herodias*
Great Gray Owl	*Strix nebulosa*

Table 1-13: Species Associated with Moist Habitats, continued

COMMON NAME	SCIENTIFIC NAME
Great Horned Owl	*Bubo virginianus*
Greater Scaup	*Aythya marila*
Greater Yellowlegs	*Tringa melanoleuca*
Green-Winged Teal	*Anas crecca*
Grizzly Bear	*Ursus arctos horribilis*
Gyrfalcon	*Falco rusticolus*
Hairy Woodpecker	*Picoides villosus*
Hammond's Flycatcher	*Empidonax hammondii*
Harlequin Duck	*Histrionicus histrionicus*
Harris' Sparrow	*Zonotrichia querula*
Hermit Thrush	*Catharus guttatus*
Herring Gull	*Larus argentatus*
Hoary Bat	*Lasiurus cinerus*
Hooded Merganser	*Lophodytes cucullatus*
Horned Grebe	*Podiceps auritus*
House Finch	*Carpodactus mexicanus*
House Mouse	*Mus musculus*
House Sparrow	*Passer domesticus*
House Wren	*Troglodytes aedon*
Idaho Giant Salamander	*Dicamptodon aterrimus*
Killdeer	*Chardrius vociferus*
Lazuli Bunting	*Passerina amoena*
Least Flycatcher	*Empidonax minimus*
Lesser Scaup	*Aythya affinis*
Lesser Yellowlegs	*Tringa flavipes*
Lewis' Woodpecker	*Memanerpes lewis*
Lincoln's Sparrow	*Melospiza lincolnii*
Little Brown Myotis	*Myotis lucifugus*
Long-Billed Curlew	*Numenius americanus*
Long-Billed Dowitcher	*Limnodromus scolopaceus*
Long-Eared Myotis	*Myotis evotis*
Long-Eared Owl	*Asio otus*
Long-Legged Myotis	*Myotis volans*
Long-Tailed Vole	*Microtus longicaudus*
Long-Tailed Weasel	*Mustela frenata*
Long-Toed Salamander	*Ambystoma macrodactylum*
Macgillivray's Warbler	*Opopornis tolmiei*
Mallard	*Anas platyrhynchos*
Marsh Wren	*Cistithorus palustris*
Masked Shrew	*Sorex cinereus*
Meadow Vole	*Microtus pennsylvanicus*
Merlin	*Falco columbarius*
Mink	*Mustela vison*
Montane Shrew	*Sorex monticolus*
Montane Vole	*Microtus montanus*
Moose	*Alces alces*
Mountain Bluebird	*Sialia currucoides*
Mountain Chickadee	*Parus gambeli*
Mountain Goat	*Oreamnos americanus*
Mountain Lion	*Felis concolor*

COMMON NAME	SCIENTIFIC NAME
Mourning Dove	*Zenaida macroura*
Mule Deer	*Odocoileus hemionus*
Muskrat	*Ondatra zibethicus*
Nashville Warbler	*Vermivora ruficapilla*
Northern Alligator Lizard	*Elgaria coerulea*
Northern Bobwhite	*Colinus virginianus*
Northern Bog Lemming	*Synaptomys borealis*
Northern Flicker	*Colaptes auratus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Northern Goshawk	*Accipter gentilis*
Northern Hawk-Owl	*Surnia ulula*
Northern Leopard Frog	*Rana pipiens*
Northern Pintail	*Anas acuta*
Northern Pocket Gopher	*Thymomys talpoides*
Northern Pygmy-Owl	*Glaucidium gnoma*
Northern River Otter	*Lutra canadensis*
Northern Rough-Winged Swallow	*Stelgidopteryx serripennis*
Northern Saw-Whet Owl	*Aegolius acadicus*
Northern Shoveler	*Anas clypeata*
Northern Waterthrush	*Seiurus noveboracensis*
Olive-Sided Flycatcher	*Contopus borealis*
Osprey	*Pandion haliaetus*
Pacific Chorus Frog	*Pseudacris regilla*
Painted Turtle	*Chrysemys picta*
Pectoral Sandpiper	*CALIDRIS MELANOTOS*
Peregrine Falcon	*Falco peregrinus*
Pied-Billed Grebe	*Ppdilymbus podiceps*
Pileated Woodpecker	*Dryocopus pileatus*
Pine Grosbeak	*Pinicola enucleator*
Porcupine	*Erethizon dorsatum*
Pygmy Nuthatch	*Sitta pygmaea*
Pygmy Shrew	*Sorex hoyi*
Racer	*Coluber constrictor*
Red Crossbill	*Loxia curvirostra*
Red Fox	*Vulpes vulpes*
Red Squirrel	*Tamiasciurus hudsonicus*
Red-Breasted Merganser	*Mergus serrator*
Red-Breasted Nuthatch	*Sitta canadensis*
Red-Eyed Vireo	*Vireo olivaceus*
Redhead	*Aythya americana*
Red-Naped Sapsucker	*Sphyrapicus nuchalis*
Red-Necked Grebe	*Podiceps grisegena*
Red-Tailed Chipmunk	*Tamias ruficaudus*
Red-Tailed Hawk	*Buteo jamaicensis*
Red-Winged Blackbird	*Agelaius phoeniceus*
Ring-Billed Gull	*Larus delawarensis*
Ring-Necked Duck	*Aythya collaris*
Ring-Necked Pheasant	*Phasianus colchicus*
Rock Dove	*Columba livia*

Table 1-13: Species Associated with Moist Habitats, continued

COMMON NAME	SCIENTIFIC NAME
Rock Wren	*Salpinctes obsoletus*
Rough-Legged Hawk	*Buto lagopus*
Rubber Boa	*Charina bottae*
Ruby-Crowned Kinglet	*Regulus calendula*
Ruddy Duck	*Oxyura jamaicensis*
Ruffed Grouse	*Bonasa umbellus*
Rufous Hummingbird	*Selasphorus rufus*
Say's Phoebe	*Sayornis saya*
Sharp-Shinned Hawk	*Accipiter striatus*
Silver-Haired Bat	*Lasionycteris noctivagans*
Snowshoe Hare	*Lepus americanus*
Song Sparrow	*Melospiza melodia*
Sora	*Porzana carolina*
Southern Red-Backed Vole	*Clethrionomys gapperi*
Spotted Frog (Columbian)	*Rana luteiventris*
Spotted Sandpiper	*Actitis macularia*
Spotted Towhee	*Pipilo maculatus*
Spruce Grouse	*Dendragapus canadensis*
Steller's Jay	*Cyanocitta stelleri*
Striped Skunk	*Mephitis mephitis*
Swainson's Hawk	*Bueto swainsoni*
Swainson's Thrush	*Catharus ustulatus*
Tailed Frog	*Ascaphus truei*
Three-Toed Woodpecker	*Picoides triadactylus*
Tiger Salamander	*Aambystoma trigrinum*
Townsend's Big-Eared Bat	*Plecotus townsendii*
Townsend's Solitaire	*Myadestes townsendi*
Townsend's Warbler	*Dendroica townsendi*
Tree Swallow	*Tachycineta bocolor*
Turkey Vulture	*Cathartes aura*
Vagrant Shrew	*Sorex vagrans*
Varied Thrush	*Ixoreus naevius*
Veery	*Catharus fuscescens*
Vesper Sparrow	*Pooecetes gramineus*
Violet-Green Swallow	*Tachycineta thalassina*
Warbling Vireo	*Vireo gilvus*

COMMON NAME	SCIENTIFIC NAME
Water Shrew	*Sorex palustris*
Water Vole	*Microtus richardsonii*
Western Bluebird	*Sialia mexicana*
Western Grebe	*Aechmophorus occidentalis*
Western Heather Vole	*Phenacomys intermedius*
Western Jumping Mouse	*Zapus princeps*
Western Kingbird	*Tyrannus verticalis*
Western Screech-Owl	*Otus kennicottii*
Western Skink	*Eumeces skiltonianus*
Western Small-Footed Myotis	*Myotis ciliolabrum*
Western Tanager	*Piranga ludoviciana*
Western Terrestrial Garter Snake	*Thamnophis elegans*
Western Wood-Pewee	*Contopus sordidulus*
White-Breasted Nuthatch	*Sittta carolinensis*
White-Crowned Sparrow	*Zonotrichia leucophrys*
White-Tailed Deer	*Odocoileus virginianus*
White-Throated Swift	*Aeronautes saxatalis*
White-Winged Crossbill	*Loxia leucoptera*
Wild Turkey	*Meleagris gallopavo*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Willow Flycatcher	*Empidonax traillii*
Wilson's Warbler	*Wilsona pusilla*
Winter Wren	*Troglodytes troglodytes*
Wolverine	*Gulo gulo*
Wood Duck	*Aix sponsa*
Woodland Caribou	*Rangifer tarandus caribou*
Yellow Warbler	*Dendroica petechia*
Yellow-Bellied Marmot	*Marmota flaviventris*
Yellow-Breasted Chat	*Icteria virens*
Yellow-Headed Blackbird	*Xanthocephalus xanthocephalus*
Yellow-Pine Chipmunk	*Tamias amoenus*
Yellow-Rumped Warbler	*Dendroica coronata*
Yuma Myotis	*Myotis yumanensis*

Table 1-14: Species Associated with Cool/Moist Habitats

COMMON NAME	SCIENTIFIC NAME
American Beaver	*Castor canadensis*
American Dipper	*Cinclus mexicanus*
American Marten	*Martes americana*
American Pika	*Ochotona princeps*
American Robin	*Turdus migratorius*
American Wigeon	*Anas american*
Barred Owl	*Strix varia*
Barrow's Goldeneye	*Bucephala islandica*
Bighorn Sheep	*Ovis canadensis*
Black Bear	*Ursus americanus*
Black Swift	*Cypseloides niger*
Black-Backed Woodpecker	*Picoides arcticus*
Black-Capped Chickadee	*Parus atricapillus*
Blue Grouse	*Dendragapus obscurus*
Blue-Winged Teal	*Anas discors*
Bohemian Waxwing	*Bombycillia garrulus*
Boreal Chickadee	*Parus hudsonicus*
Boreal Owl	*Aegolius funereus*
Boreal Toad (Western)	*Bufo boreas boreas*
Broad-Tailed Hummingbird	*Selasphorus playcercus*
Brown Creeper	*Certhia americana*
Brown-Headed Cowbird	*Molothrus ater*
Bufflehead	*Bucephala albeola*
Bushy-Tailed Woodrat	*Neotoma cinerea*
Calliope Hummingbird	*Stellula calliope*
Canada Goose	*Branta canadensis*
Canada Lynx	*Felis lynx*
Cassin's Finch	*Carpodacus cassinii*
Cassin's Vireo	*Vireo cassinii*
Chestnut-Backed Chickadee	*Parus rufescens*
Chipping Sparrow	*Spizella passerina*
Clark's Nutcracker	*Nucifraga columbiana*
Coeur D'alene Salamander	*Plethodon idahoensis*
Columbian Ground Squirrel	*Spermophilus columbianus*
Common Garter Snake	*Thamnophis sirtalis*
Common Goldeneye	*Bucephala clangula*
Common Loon	*Gavia immer*
Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*
Common Raven	*Corvus corax*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	*Aaccipiter cooperii*
Cordilleran Flycatcher	*Empidonax occidentalis*
Coyote	*Canis latrans*
Dark-Eyed Junco	*Junco hyemalis*
Deer Mouse	*Peromyscus maniculatus*
Downy Woodpecker	*Picoides pubescensI*
Dusky Flycatcher	*Empidonax oberholseri*
Elk	*Cervus elaphus nelsoni*
Ermine (Short-Tailed Weasel)	*Mustela erminea*
Eurasian Wigeon	*Anas penelope*

COMMON NAME	SCIENTIFIC NAME
Evening Grosbeak	*Coccothraustes vespertinus*
Fisher	*Martes pennanti*
Fox Sparrow	*Passerella iliaca*
Fringed Myotis	*Myotis thysanodes*
Golden-Crowned Kinglet	*Regulus satrapa*
Golden-Mantled Ground Squirrel	*Spermophilus lateralis*
Gray Jay	*Perisoreus canadensis*
Gray Wolf	*Canis lupus*
Great Gray Owl	*Strix nebulosa*
Great Horned Owl	*Bubo virginianus*
Greater Scaup	*Aythya marila*
Greater Yellowlegs	*Tringa melanoleuca*
Green-Winged Teal	*Anas crecca*
Grizzly Bear	*Ursus arctos horribilis*
Hairy Woodpecker	*Picoides villosus*
Hammond's Flycatcher	*Empidonax hammondii*
Harlequin Duck	*Histrionicus histrionicus*
Hermit Thrush	*Catharus guttatus*
Hoary Bat	*Lasiurus cinerus*
House Wren	*Troglodytes aedon*
Idaho Giant Salamander	*Dicamptodon aterrimus*
Killdeer	*Chardrius vociferus*
Lazuli Bunting	*Passerina amoena*
Lesser Scaup	*Aythya affinis*
Lesser Yellowlegs	*Tringa flavipes*
Lincoln's Sparrow	*Melospiza lincolnii*
Little Brown Myotis	*Myotis lucifugus*
Long-Eared Myotis	*Myotis evotis*
Long-Eared Owl	*Asio otus*
Long-Legged Myotis	*Myotis volans*
Long-Tailed Vole	*Microtus longicaudus*
Long-Tailed Weasel	*Mustela frenata*
Long-Toed Salamander	*Ambystoma macrodactylum*
Macgillivray's Warbler	*Opopornis tolmiei*
Mallard	*Anas platyrhynchos*
Masked Shrew	*Sorex cinereus*
Meadow Vole	*Microtus pennsylvanicus*
Merlin	*Falco columbarius*
Mink	*Mustela vison*
Montane Shrew	*Sorex monticolus*
Montane Vole	*Microtus montanus*
Moose	*Alces alces*
Mountain Bluebird	*Sialia currucoides*
Mountain Chickadee	*Parus gambeli*
Mountain Goat	*Oreamnos americanus*
Mountain Lion	*Felis concolor*
Mourning Dove	*Zenaida macroura*
Mule Deer	*Odocoileus hemionus*
Nashville Warbler	*Vermivora ruficapilla*

Table 1-14: Species Associated with Cool/Moist Habitats, continued

COMMON NAME	SCIENTIFIC NAME
Northern Alligator Lizard	*Elgaria coerulea*
Northern Bog Lemming	*Synaptomys borealis*
Northern Flicker	*Colaptes auratus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Northern Goshawk	*Accipter gentilis*
Northern Hawk-Owl	*Surnia ulula*
Northern Pocket Gopher	*Thymomys talpoides*
Northern Pygmy-Owl	*Glaucidium gnoma*
Northern River Otter	*Lutra canadensis*
Northern Saw-Whet Owl	*Aegolius acadicus*
Northern Waterthrush	*Seiurus noveboracensis*
Olive-Sided Flycatcher	*Contopus borealis*
Osprey	*Pandion haliaetus*
Olive-Sided Flycatcher	*Contopus borealis*
Osprey	*Pandion haliaetus*
Pacific Chorus Frog	*Pseudacris regilla*
Pectoral Sandpiper	*Calidris melanotos*
Peregrine Falcon	*Falco peregrinus*
Pine Grosbeak	*Pinicola enucleator*
Porcupine	*Erethizon dorsatum*
Preble's Shrew	*Sorex preblei*
Racer	*Coluber constrictor*
Red Crossbill	*Loxia curvirostra*
Red Squirrel	*Tamiasciurus hudsonicus*
Red-Breasted Nuthatch	*Sitta canadensis*
Red-Naped Sapsucker	*Sphyrapicus nuchalis*
Red-Necked Grebe	*Podiceps grisegena*
Red-Tailed Chipmunk	*Tamias ruficaudus*
Red-Tailed Hawk	*Buteo jamaicensis*
Ring-Necked Duck	*Aythya collaris*
Rubber Boa	*Charina bottae*
Ruby-Crowned Kinglet	*Regulus calendula*
Ruffed Grouse	*Bonasa umbellus*
Rufous Hummingbird	*Selasphorus rufus*
Sharp-Shinned Hawk	*Accipiter striatus*
Silver-Haired Bat	*Lasionycteris noctivagans*
Snowshoe Hare	*Lepus americanus*
Song Sparrow	*Melospiza melodia*
Southern Red-Backed Vole	*Clethrionomys gapperi*
Spotted Frog (Columbian)	*Rana luteiventris*
Spotted Sandpiper	*Actitis macularia*
Spruce Grouse	*Dendragapus canadensis*
Steller's Jay	*Cyanocitta stelleri*
Swainson's Thrush	*Catharus ustulatus*
Tailed Frog	*Ascaphus truei*
Three-Toed Woodpecker	*Picoides triadactylus*
Tiger Salamander	*Aambystoma trigrinum*
Townsend's Big-Eared Bat	*Plecotus townsendii*
Townsend's Solitaire	*Myadestes townsendi*
Townsend's Warbler	*Dendroica townsendi*
Vagrant Shrew	*Sorex vagrans*
Varied Thrush	*Ixoreus naevius*
Veery	*Catharus fuscescens*
Violet-Green Swallow	*Tachycineta thalassina*
Warbling Vireo	*Vireo gilvus*
Water Shrew	*Sorex palustris*
Water Vole	*Microtus richardsonii*
Western Grebe	*Aechmophorus occidentalis*
Western Heather Vole	*Phenacomys intermedius*
Western Jumping Mouse	*Zapus princeps*
Western Screech-Owl	*Otus kennicottii*
Western Tanager	*Piranga ludoviciana*
Western Terrestrial Garter Snake	*Thamnophis elegans*
White-Breasted Nuthatch	*Sittta carolinensis*
White-Crowned Sparrow	*Zonotrichia leucophrys*
White-Tailed Ptarmigan	*Lagopus leucurus*
White-Winged Crossbill	*Loxia leucoptera*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Willow Flycatcher	*Empidonax traillii*
Wilson's Warbler	*Wilsona pusilla*
Winter Wren	*Troglodytes troglodytes*
Wolverine	*Gulo gulo*
Wood Duck	*Aix sponsa*
Woodland Caribou	*Rangifer tarandus caribou*
Yellow Warbler	*Dendroica petechia*
Yellow-Bellied Marmot	*Marmota flaviventris*
Yellow-Pine Chipmunk	*Tamias amoenus*
Yellow-Rumped Warbler	*Dendroica coronata*

Table 1-15: Species Associated with Cool/Moderately Dry Habitats

COMMON NAME	SCIENTIFIC NAME
American Dipper	*Cinclus mexicanus*
American Marten	*Martes americana*
American Pika	*Ochotona princeps*
American Robin	*Turdus migratorius*
Barred Owl	*Strix varia*
Bighorn Sheep	*Ovis canadensis*
Black Bear	*Ursus americanus*
Black Swift	*Cypseloides niger*
Black-Backed Woodpecker	*Picoides arcticus*
Black-Capped Chickadee	*Parus atricapillus*
Blue Grouse	*Dendragapus obscurus*
Boreal Chickadee	*Parus hudsonicus*
Boreal Owl	*Aegolius funereus*
Boreal Toad (Western)	*Bufo boreas boreas*
Broad-Tailed Hummingbird	*Selasphorus playcercus*
Brown Creeper	*Certhia americana*
Brown-Headed Cowbird	*Molothrus ater*
Bushy-Tailed Woodrat	*Neotoma cinerea*
Canada Lynx	*Felis lynx*
Cassin's Finch	*Carpodacus cassinii*
Cassin's Vireo	*Vireo cassinii*
Chestnut-Backed Chickadee	*Parus rufescens*
Chipping Sparrow	*Spizella passerina*
Clark's Nutcracker	*Nucifraga columbiana*
Columbian Ground Squirrel	*Spermophilus columbianus*
Common Garter Snake	*Thamnophis sirtalis*
Common Loon	*Gavia immer*
Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*
Common Raven	*Corvus corax*
Cooper's Hawk	*Aaccipiter cooperii*
Coyote	*Canis latrans*
Dark-Eyed Junco	*Junco hyemalis*
Deer Mouse	*Peromyscus maniculatus*
Elk	*Cervus elaphus nelsoni*
Ermine (Short-Tailed Weasel)	*Mustela erminea*
Evening Grosbeak	*Coccothraustes vespertinus*
Fisher	*Martes pennanti*
Fringed Myotis	*Myotis thysanodes*
Golden-Crowned Kinglet	*Regulus satrapa*
Golden-Mantled Ground Squirrel	*Spermophilus lateralis*
Gray Jay	*Perisoreus canadensis*
Gray-Crowned Rosy Finch	*Leucosticte tephrocotis*
Great Horned Owl	*Bubo virginianus*
Grizzly Bear	*Ursus arctos horribilis*
Hairy Woodpecker	*Picoides villosus*
Harlequin Duck	*Histrionicus histrionicus*

COMMON NAME	SCIENTIFIC NAME
Hermit Thrush	*Catharus guttatus*
Hoary Bat	*Lasiurus cinerus*
Hoary Marmot	*Marmota caligata*
Little Brown Myotis	*Myotis lucifugus*
Long-Eared Myotis	*Myotis evotis*
Long-Eared Owl	*Asio otus*
Long-Legged Myotis	*Myotis volans*
Long-Tailed Vole	*Microtus longicaudus*
Long-Tailed Weasel	*Mustela frenata*
Long-Toed Salamander	*Ambystoma macrodactylum*
Masked Shrew	*Sorex cinereus*
Meadow Vole	*Microtus pennsylvanicus*
Mink	*Mustela vison*
Montane Shrew	*Sorex monticolus*
Montane Vole	*Microtus montanus*
Moose	*Alces alces*
Mountain Bluebird	*Sialia currucoides*
Mountain Chickadee	*Parus gambeli*
Mountain Goat	*Oreamnos americanus*
Mountain Lion	*Felis concolor*
Mule Deer	*Odocoileus hemionus*
Nashville Warbler	*Vermivora ruficapilla*
Northern Bog Lemming	*Synaptomys borealis*
Northern Flicker	*Colaptes auratus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Northern Hawk-Owl	*Surnia ulula*
Northern Pocket Gopher	*Thymomys talpoides*
Northern Pygmy-Owl	*Glaucidium gnoma*
Northern Saw-Whet Owl	*Aegolius acadicus*
Olive-Sided Flycatcher	*Contopus borealis*
Osprey	*Pandion haliaetus*
Pacific Chorus Frog	*Pseudacris regilla*
Peregrine Falcon	*Falco peregrinus*
Pine Grosbeak	*Pinicola enucleator*
Porcupine	*Erethizon dorsatum*
Preble's Shrew	*Sorex preblei*
Red Crossbill	*Loxia curvirostra*
Red Squirrel	*Tamiasciurus hudsonicus*
Red-Breasted Nuthatch	*Sitta canadensis*
Red-Naped Sapsucker	*Sphyrapicus nuchalis*
Red-Tailed Chipmunk	*Tamias ruficaudus*
Rubber Boa	*Charina bottae*
Ruby-Crowned Kinglet	*Regulus calendula*
Ruffed Grouse	*Bonasa umbellus*
Sharp-Shinned Hawk	*Accipiter striatus*
Snowshoe Hare	*Lepus americanus*
Song Sparrow	

Table 1-15: Species Associated with Cool/Moderately Dry Habitats, continued

COMMON NAME	SCIENTIFIC NAME
Spotted Frog (Columbian)	*Rana luteiventris*
Spotted Sandpiper	*Actitis macularia*
Spruce Grouse	*Dendragapus canadensis*
Steller's Jay	*Cyanocitta stelleri*
Swainson's Thrush	*Catharus ustulatus*
Tailed Frog	*Ascaphus truei*
Three-Toed Woodpecker	*Picoides triadactylus*
Tiger Salamander	*Aambystoma trigrinum*
Townsend's Big-Eared Bat	*Plecotus townsendii*
Townsend's Solitaire	*Myadestes townsendi*
Vagrant Shrew	*Sorex vagrans*
Violet-Green Swallow	*Tachycineta thalassina*
Water Shrew	*Sorex palustris*

COMMON NAME	SCIENTIFIC NAME
Water Vole	*Microtus richardsonii*
Western Heather Vole	*Phenacomys intermedius*
Western Jumping Mouse	*Zapus princeps*
Western Screech-Owl	*Otus kennicottii*
Western Terrestrial Garter Snake	*Thamnophis elegans*
White-Tailed Ptarmigan	*Lagopus leucurus*
White-Winged Crossbill	*Loxia leucoptera*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Wolverine	*Gulo gulo*
Woodland Caribou	*Rangifer tarandus caribou*
Yellow-Bellied Marmot	*Marmota flaviventris*
Yellow-Rumped Warbler	*Dendroica coronata*

Table 1-16: Species Associated with Cold/Dry Habitats

COMMON NAME	SCIENTIFIC NAME
American Pika	*Ochotona princeps*
American Robin	*Turdus migratorius*
Bighorn Sheep	*Ovis canadensis*
Black Bear	*Ursus americanus*
Black Rosy Finch	*Leucosticte atrata*
Black Swift	*Cypseloides niger*
Black-Backed Woodpecker	*Picoides arcticus*
Black-Capped Chickadee	*Parus atricapillus*
Blue Grouse	*Dendragapus obscurus*
Boreal Chickadee	*Parus hudsonicus*
Boreal Owl	*Aegolius funereus*
Broad-Tailed Hummingbird	*Selasphorus playcercus*
Bushy-Tailed Woodrat	*Neotoma cinerea*
Canada Lynx	*Felis lynx*
Cassin's Finch	*Carpodacus cassinii*
Chestnut-Backed Chickadee	*Parus rufescens*
Clark's Nutcracker	*Nucifraga columbiana*
Columbian Ground Squirrel	*Spermophilus columbianus*
Common Raven	*Corvus corax*
Cooper's Hawk	*Aaccipiter cooperii*
Coyote	*Canis latrans*
Dark-Eyed Junco	*Junco hyemalis*
Deer Mouse	*Peromyscus maniculatus*
Ermine (Short-Tailed Weasel)	*Mustela erminea*
Golden-Crowned Kinglet	*Regulus satrapa*
Golden-Mantled Ground Squirrel	*Spermophilus lateralis*
Gray Jay	*Perisoreus canadensis*
Gray-Crowned Rosy Finch	*Leucosticte tephrocotis*
Great Horned Owl	*Bubo virginianus*
Grizzly Bear	*Ursus arctos horribilis*
Hairy Woodpecker	*Picoides villosus*
Hermit Thrush	*Catharus guttatus*
Hoary Bat	*Lasiurus cinerus*
Hoary Marmot	*Marmota caligata*
Little Brown Myotis	*Myotis lucifugus*
Long-Eared Owl	*Asio otus*
Long-Tailed Vole	*Microtus longicaudus*
Long-Tailed Weasel	*Mustela frenata*
Montane Shrew	*Sorex monticolus*
Montane Vole	*Microtus montanus*
Mountain Chickadee	*Parus gambeli*

COMMON NAME	SCIENTIFIC NAME
Mountain Goat	*Oreamnos americanus*
Mountain Lion	*Felis concolor*
Mule Deer	*Odocoileus hemionus*
Northern Bog Lemming	*Synaptomys borealis*
Northern Hawk-Owl	*Surnia ulula*
Northern Pocket Gopher	*Thymomys talpoides*
Northern Pygmy-Owl	*Glaucidium gnoma*
Northern Saw-Whet Owl	*Aegolius acadicus*
Olive-Sided Flycatcher	*Contopus borealis*
Osprey	*Pandion haliaetus*
Peregrine Falcon	*Falco peregrinus*
Pine Grosbeak	*Pinicola enucleator*
Preble's Shrew	*Sorex preblei*
Red Crossbill	*Loxia curvirostra*
Red Squirrel	*Tamiasciurus hudsonicus*
Red-Breasted Nuthatch	*Sitta canadensis*
Red-Tailed Chipmunk	*Tamias ruficaudus*
Red-Tailed Hawk	*Buteo jamaicensis*
Ruby-Crowned Kinglet	*Regulus calendula*
Snowshoe Hare	*Lepus americanus*
Southern Red-Backed Vole	*Clethrionomys gapperi*
Spotted Frog (Columbian)	*Rana luteiventris*
Spruce Grouse	*Dendragapus canadensis*
Steller's Jay	*Cyanocitta stelleri*
Swainson's Thrush	*Catharus ustulatus*
Tailed Frog	*Ascaphus truei*
Three-Toed Woodpecker	*Picoides triadactylus*
Tiger Salamander	*Aambystoma trigrinum*
Townsend's Solitaire	*Myadestes townsendi*
Water Shrew	*Sorex palustris*
Western Heather Vole	*Phenacomys intermedius*
Western Jumping Mouse	*Zapus princeps*
White-Tailed Ptarmigan	*Lagopus leucurus*
White-Throated Swift	*Aeronautes saxatalis*
White-Winged Crossbill	*Loxia leucoptera*
Wolverine	*Gulo gulo*
Woodland Caribou	*Rangifer tarandus caribou*
Yellow-Bellied Marmot	*Marmota flaviventris*
Yellow-Rumped Warbler	*Dendroica coronata*

Table 1-17: Species Associated with Edge Habitat

COMMON NAME	SCIENTIFIC NAME
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Carduelis tristis*
American Redstart	*Setopha garuticilla*
American Kestrel	*Falco sparverius*
American Robin	*Turdus migratorius*
Barred Owl	*Strix varia*
Blue Jay	*Cyanocitta cristata*
Brown-Headed Cowbird	*Molothrus ater*
Bullock's Oriole	*Icterus bullockii*
California Quail	*Callipepla californica*
Calliope Hummingbird	*Stellula calliope*
Canada Lynx	*Felis lynx*
Cedar Waxwing	*Bombycilla cedrorum*
Chipping Sparrow	*Spizella passerina*
Clark's Nutcracker	*Nucifraga columbiana*
Common Grackle	*Quiscalus quiscula*
Common Nighthawk	*Chordeiles minor*
Cordilleran Flycatcher	*Empidonax occidentalis*
Dark-Eyed Junco	*Junco hyemalis*
Eastern Kingbird	*Tyrannus tyrannus*
Elk	*Cervus elaphus nelsoni*
Ermine (Short-Tailed Weasel)	*Mustela erminea*
European Starling	*Sturnus vulgaris*
Gray Catbird	*Dumetella carolinensis*
Great Gray Owl	*Strix nebulosa*
Great Horned Owl	*Bubo virginianus*
Hammond's Flycatcher	*Empidonax hammondii*
Harlequin Duck	*Histrionicus histrionicus*
Hoary Bat	*Lasiurus cinerus*
House Finch	*Carpodactus mexicanus*
House Wren	*Troglodytes aedon*
Lark Sparrow	*Chondestes grammacus*
Least Flycatcher	*Empidonax minimus*
Lewis' Woodpecker	*Memanerpes lewis*

COMMON NAME	SCIENTIFIC NAME
Lincoln's Sparrow	*Melospiza lincolnii*
Little Brown Myotis	*Myotis lucifugus*
Long-Eared Owl	*Asio otus*
Long-Tailed Weasel	*Mustela frenata*
Macgillivray's Warbler	*Opopornis tolmiei*
Merlin	*Falco columbarius*
Mourning Dove	*Zenaida macroura*
Mule Deer	*Odocoileus hemionus*
Nashville Warbler	*Vermivora ruficapilla*
Northern Hawk-Owl	*Surnia ulula*
Northern Pocket Gopher	*Thymomys talpoides*
Northern Pygmy-Owl	*Glaucidium gnoma*
Olive-Sided Flycatcher	*Contopus borealis*
Red-Tailed Chipmunk	*Tamias ruficaudus*
Red-Tailed Hawk	*Buteo jamaicensis*
Red-Winged Blackbird	*Agelaius phoeniceus*
Ring-Necked Pheasant	*Phasianus colchicus*
Rough-Legged Hawk	*Buto lagopus*
Song Sparrow	*Melospiza melodia*
Spotted Towhee	*Pipilo maculatus*
Striped Skunk	*Mephitis mephitis*
Tree Swallow	*Tachycineta bocolor*
Turkey Vulture	*Cathartes aura*
Vesper Sparrow	*Pooecetes gramineus*
Warbling Vireo	*Vireo gilvus*
Western Bluebird	*Sialia mexicana*
Western Heather Vole	*Phenacomys intermedius*
Western Kingbird	*Tyrannus verticalis*
Western Tanager	*Piranga ludoviciana*
Western Wood-Pewee	*Contopus sordidulus*
White-Breasted Nuthatch	*Sittta carolinensis*
Wood Duck	*Aix sponsa*
Yellow Warbler	*Dendroica petechia*

Table 1-18: Species Associated with Interior Habitat

COMMON NAME	SCIENTIFIC NAME
American Marten	*Martes americana*
Brown Creeper	*Certhia americana*
Cooper's Hawk	*Aaccipiter cooperii*
Golden-Crowned Kinglet	*Regulus satrapa*
Hairy Woodpecker	*Picoides villosus*
Hermit Thrush	*Catharus guttatus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Northern Goshawk	*Accipter gentilis*
Northern Waterthrush	*Seiurus noveboracensis*
Pileated Woodpecker	*Dryocopus pileatus*

COMMON NAME	SCIENTIFIC NAME
Red-Breasted Nuthatch	*Sitta canadensis*
Sharp-Shinned Hawk	*Accipiter striatus*
Southern Red-Backed Vole	*Clethrionomys gapperi*
Townsends Warbler	*Dendroica townsendi*
Varied Thrush	*Ixoreus naevius*
Veery	*Catharus fuscescens*
White-Headed Woodpecker	*Picoides albolarvatus*
Winter Wren	*Troglodytes troglodytes*
Yellow-Rumped Warbler	*Dendroica coronata*

Table 1-19: Species Associated with Snag and/or Log Habitat

COMMON NAME	SCIENTIFIC NAME
American Kestrel	*Falco sparverius*
American Marten	*Martes americana*
Bald Eagle	*Haliaeetus leucocphalus*
Barn Owl	*Tyto alba*
Barred Owl	*Strix varia*
Barrow's Goldeneye	*Bucephala islandica*
Big Brown Bat	*Eptesicus fuscus*
Black-Backed Woodpecker	*Picoides arcticus*
Black Bear	*Ursus americanus*
Black-Capped Chickadee	*Parus atricapillus*
Blue Grouse	*Dendragapus obscurus*
Bobcat	*Felis rufus*
Boreal Chickadee	*Parus hudsonicus*
Boreal Owl	*Aegolius funereus*
Boreal Toad (Western)	*Bufo boreas boreas*
Brown Creeper	*Certhia americana*
Bufflehead	*Bucephala albeola*
California Myotis	*Myotis californicus*
Canada Lynx	*Felis lynx*
Chestnut-Backed Chickadee	*Parus rufescens*
Common Garter Snake	*Thamnophis sirtalis*
Common Goldeneye	*Bucephala clangula*
Common Merganser	*Mergus merganser*
Cordilleran Flycatcher	*Empidonax occidentalis*
Deer Mouse	*Peromyscus maniculatus*
Downy Woodpecker	*Picoides pubescensI*
Ermine (Short-Tailed Weasel)	*Mustela erminea*
European Starling	*Sturnus vulgaris*
Fisher	*Martes pennanti*
Flammulated Owl	*Otus flammeolus*
Gopher Snake	*Pituophis cantenifer*
Great Gray Owl	*Strix nebulosa*
Great Horned Owl	*Bubo virginianus*
Hairy Woodpecker	*Picoides villosus*
Harlequin Duck	*Histrionicus histrionicus*
Hooded Merganser	*Lophodytes cucullatus*
House Wren	*Troglodytes aedon*
Idaho Giant Salamander	*Dicamptodon aterrimus*
Lewis' Woodpecker	*Memanerpes lewis*
Little Brown Myotis	*Myotis lucifugus*
Long-Eared Myotis	*Myotis evotis*
Long-Legged Myotis	*Myotis volans*
Long-Tailed Weasel	*Mustela frenata*
Long-Toed Salamander	*Ambystoma macrodactylum*
Masked Shrew	*Sorex cinereus*
Montane Shrew	*Sorex monticolus*
Mountain Bluebird	*Sialia currucoides*
Mountain Chickadee	*Parus gambeli*
Mountain Lion	*Felis concolor*
Northern Alligator Lizard	*Elgaria coerulea*

COMMON NAME	SCIENTIFIC NAME
Northern Flicker	*Colaptes auratus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Northern Goshawk	*Accipter gentilis*
Northern Hawk-Owl	*Surnia ulula*
Northern Pygmy-Owl	*Glaucidium gnoma*
Northern River Otter	*Lutra canadensis*
Northern Saw-Whet Owl	*Aegolius acadicus*
Northern Waterthrush	*Seiurus noveboracensis*
Osprey	*Pandion haliaetus*
Pileated Woodpecker	*Dryocopus pileatus*
Porcupine	*Erethizon dorsatum*
Pygmy Nuthatch	*Sitta pygmaea*
Raccoon	*Procyon lotor*
Racer	*Coluber constrictor*
Red Squirrel	*Tamiasciurus hudsonicus*
Red-Breasted Merganser	*Mergus serrator*
Red-Breasted Nuthatch	*Sitta canadensis*
Red-Naped Sapsucker	*Sphyrapicus nuchalis*
Red-Tailed Chipmunk	*Tamias ruficaudus*
Red-Tailed Hawk	*Buteo jamaicensis*
Rubber Boa	*Charina bottae*
Ruffed Grouse	*Bonasa umbellus*
Silver-Haired Bat	*Lasionycteris noctivagans*
Snowshoe Hare	*Lepus americanus*
Southern Red-Backed Vole	*Clethrionomys gapperi*
Spruce Grouse	*Dendragapus canadensis*
Striped Skunk	*Mephitis mephitis*
Swainson's Thrush	*Catharus ustulatus*
Tailed Frog	*Ascaphus truei*
Three-Toed Woodpecker	*Picoides triadactylus*
Townsend's Big-Eared Bat	*Plecotus townsendii*
Tree Swallow	*Tachycineta bocolor*
Turkey Vulture	*Cathartes aura*
Vaux's Swift	*Chaetura vauxi*
Violet-Green Swallow	*Tachycineta thalassina*
Water Vole	*Microtus richardsonii*
Western Bluebird	*Sialia mexicana*
Western Heather Vole	*Phenacomys intermedius*
Western Jumping Mouse	*Zapus princeps*
Western Screech-Owl	*Otus kennicottii*
Western Skink	*Eumeces skiltonianus*
Western Small-Footed Myotis	*Myotis ciliolabrum*
White-Breasted Nuthatch	*Sittta carolinensis*
White-Headed Woodpecker	*Picoides albolarvatus*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Winter Wren	*Troglodytes troglodytes*
Wolverine	*Gulo gulo*
Wood Duck	*Aix sponsa*
Yellow-Pine Chipmunk	*Tamias amoenus*

Table 1-20: KIPZ TES Species List

STATUS	COMMON NAME	SCIENTIFIC NAME
Endangered:	Gray Wolf	*Canis lupus*
	Woodland Caribou	*Rangifer tarandus caribou*
Threatened:	Bald Eagle	*Haliaeetus leucocephalus*
	Canada Lynx	*Felis lynx*
	Grizzly Bear	*Ursus arctos horribilis*
Sensitive:	Baird's Sparrow	*Ammondramus bairdii*
	Black-Backed Woodpecker	*Picoides arcticus*
	Boreal Toad (Western)	*Bufo boreas boreas*
	Burrowing Owl	*Speotyto cumicularia*
	Coeur D'alene Salamander	*Plethodon idahoensis*
	Columbian Sharp-Tailed Grouse	*Tympanuchus phasianellus*
	Common Loon	*Gavia immer*
	Fisher	*Martes pennanti*
	Flammulated Owl	*Otus flammeolus*
	Harlequin Duck	*Histrionicus histrionicus*
	Loggerhead Shrike	*Lanius ludovicianus*
	Northern Bog Lemming	*Synaptomys borealis*
	Northern Goshawk	*Accipter gentilis*
	Northern Leopard Frog	*Rana pipiens*
	Peregrine Falcon	*Falco peregrinus*
	Townsend's Big-Eared Bat	*Plecotus townsendii*
	Trumpeter Swan	*Cygnus buccinator*
	White-Headed Woodpecker	*Picoides albolarvatus*
	Wolverine	*Gulo gulo*

Table 1-21: KIPZ Species At Risk

COMMON NAME	ESA Status	USFS R1 Status	R1 Protocol	KNF Status	IPNFs Status
Canada Lynx	Threatened	Threatened	1	yearlong	yearlong
Woodland Caribou	Endangered		1	extirpated	yearlong
Bald Eagle	Threatened	Threatened	1	yearlong	yearlong
Gray Wolf	Endangered	Endangered		yearlong	yearlong
Grizzly Bear	Threatened	Threatened	1	yearlong	yearlong
Idaho Giant Salamander			2		yearlong
Coeur D'alene Salamander		Sensitive	2	yearlong	yearlong
Columbian Sharp-Tailed Grouse		Sensitive	2	yearlong	
Peregrine Falcon		Sensitive	2	seasonal	seasonal
Black-Backed Woodpecker		Sensitive	3	yearlong	yearlong
		Sensitive	3	yearlong	yearlong
Fisher		Sensitive	3	yearlong	yearlong
Flammulated Owl		Sensitive	3	seasonal	seasonal
Harlequin Duck		Sensitive	3	seasonal	seasonal
Northern Bog Lemming		Sensitive	3	yearlong	yearlong
Northern Goshawk		Sensitive	3	yearlong	yearlong
Northern Leopard Frog			3	yearlong	extirpated
Townsend's Big-Eared Bat		Sensitive	3	seasonal	yearlong
Boreal Toad (Western)		Sensitive		yearlong	yearlong
White-Headed Woodpecker		Sensitive	3	accidental	yearlong
Wolverine		Sensitive	3		yearlong
Lewis' Woodpecker			4	yearlong	seasonal

Species at Risk – Accidental Occurrence on KIPZ or not on NFS Lands

Common Name	ESA Status	USFS R1 Status	R1 Protocol	KNF STATUS	IPNFs STATUS
Burrowing Owl		Sensitive	3	accidental	no record
Baird's Sparrow		Sensitive	3	accidental	no record
Loggerhead Shrike		Sensitive	3	transient	transient
Trumpeter Swan		Sensitive	3	no record	migrant

Revision Topic – Watersheds and Aquatic Species

Need for Change

At the time the KNF and IPNFs Forest Plans were written (circa 1987), the emphasis was on developing a commodity production strategy while "minimizing" the impacts to watersheds and their aquatic resources. The strategies for watershed management were constructed in the Forest Plans essentially as "maintenance" objectives, but they lacked direction for proactive improvement or restoration of those resources. In some situations, thresholds, or "minimum impact" standards defined the criteria for maintenance. The 1987 Forest Plans, taken as a system of strategies and programs, were not designed to "restore" damaged water resources or watershed systems, or to protect those that were not impaired.

The Forest Plans rely on the application of Best Management Practices (BMPs) to ensure that watersheds and water resources are maintained during forest management activities. The adverse effects to soil and water quality have continually been reduced with the application and improvement of BMPs over time; but there continue to be impaired watersheds within the boundaries of KIPZ that do not fully support beneficial uses of the water.

In 1995, the Forest Plans were amended to include the Inland Native Fish Strategy (INFISH) (USDA 1995d). The implementation of INFISH gave greater protection to aquatic resources, especially riparian-dependent systems. INFISH was an interim measure intended to maintain and protect aquatic resources until a long-term strategy (presumably through Forest Plan Revisions) could be developed. While INFISH has led to improvement in the condition of aquatic resources by offering significant and more effective protections, the strategy falls short in some areas such as its focus on only certain priority watersheds, its focus on only part of the watershed (the riparian area - RHCA), and the default Riparian Management Objectives (RMOs) were developed for different conditions than those often occurring on the KIPZ meaning they may not be representative of these forests. In addition, although INFISH allows for and even encourages that watershed restoration be done, it lacks any specific direction or priority to do so.

Although the 1987 Forest Plans as amended by the INFISH strategy did not contain direction for watershed restoration, they also did not preclude it. Restoration has occurred in varying degrees over the years. BMPs, protections afforded by the implementation of INFISH, and increasing numbers of restoration projects have improved sites and even some tributary systems; however, more can be done with greater efficiency with restoration strategies in the Forest Plans focused on watershed systems.

Indications that the forests can more effectively contribute to aquatic elements related to ecological sustainability and that there is a need for increased restoration efforts include:

- Nearly a third of the sub-watersheds on or influenced by the two forests in the KIPZ have indications that their watershed condition is "Not Properly Functioning." Conversely, less than a quarter of the sub-watersheds appear to be "Properly Functioning." And, nearly half of the sub-watersheds, although currently properly functioning, exhibit trends or substantial risks that may move them into a "not properly functioning" category. This last category is termed "Functioning-At Risk." (Figure 1-25)
- Many stream segments, lakes, and other water bodies have been listed in the last ten years as "Water Quality Limited Segments" by the states of Idaho and Montana (Figure 1-26).
- Several fish and amphibian species on the forests are listed as threatened or endangered under Endangered Species Act (ESA), or as sensitive by the Regional Forester.
- There are conflicting priorities for limited restoration funds and resources. Forest Service, USFWS, and State Departments of Environmental Quality have different restoration priorities.

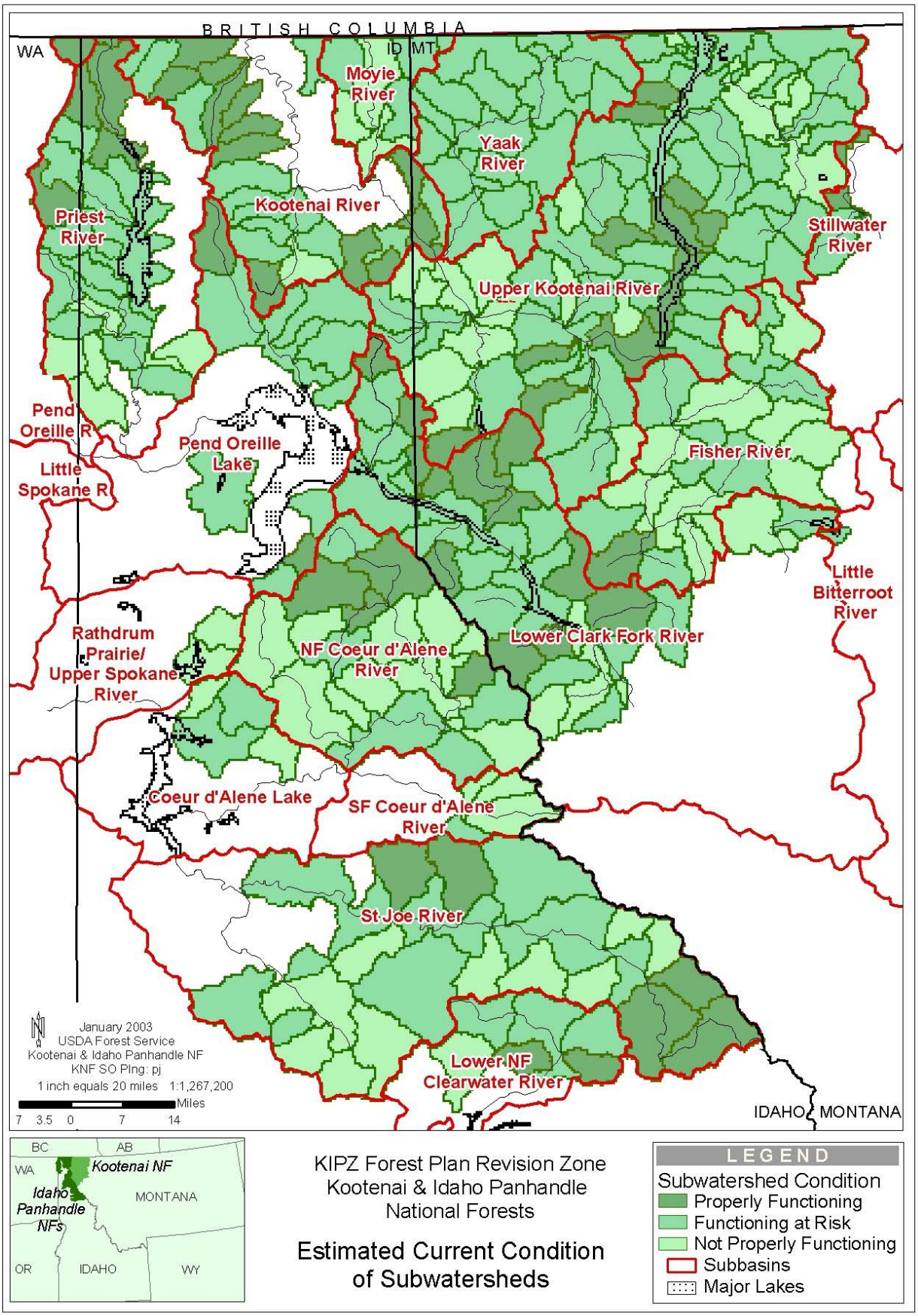


Figure 1-25: Estimated Current Condition of Sub-Watersheds on the KIPZ

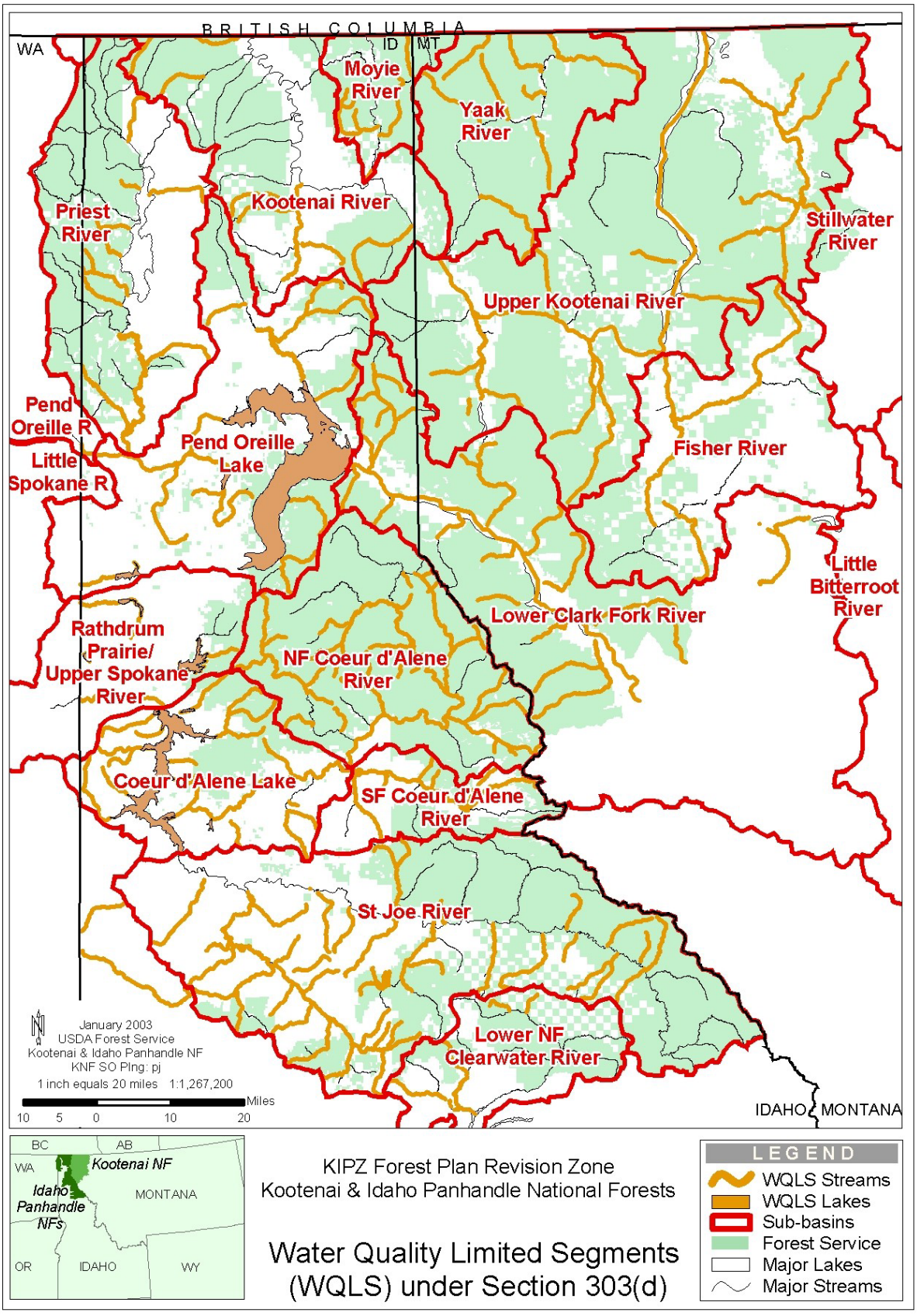


Figure 1-26: Water Quality Limited Segments (WQLS) listed under CWA Section 303(d)

Forest Plan Revision presents the opportunity to improve on past efforts (e.g., BMPs, INFISH) and to develop further direction for aquatic restoration. In addition, the revision process is a chance to integrate the KIPZ Forest Plans with other agencies' and groups' watershed restoration priorities and schedules. For instance, the priorities in the forests' mid-scale assessments (Geographic or Landscape Assessments) and the ensuing watershed restoration strategies often conflict with the State and EPA 303(d) and resulting TMDL plans and priorities. Other potentially conflicting strategies include national "large watershed" projects, State bull trout conservation plans, and westslope cutthroat trout conservation strategy Memorandum of Understanding (MOU) between Forest Service Region 1 and the state of Montana.

Forest Plan Revision provides an opportunity to resolve potential conflicts between aquatic restoration objectives and priorities and those of other resources. One example is the creation of grizzly bear core habitat, which has resulted in closures of roads that still have culverts and road prisms across sensitive land types. Since these roads are not maintained, there is an increasing risk of failures over time that would be detrimental to water quality and fisheries habitat. However, entering these closed roads to remove culverts and unstable roadbeds could lead to a temporary reduction in grizzly bear core habitat.

Laws and Regulations for Watershed

Clean Water Act The Federal Water Pollution Control Act, or Clean Water Act, is the principal law concerned with polluting activity in the nation's streams, lakes, and estuaries. Originally enacted in 1948, it has been revised by amendments in 1972 (P.L. 92-500) that gave the Act its current form and spelled out ambitious programs for water quality improvements that are now being put in place by industries and cities. Congress refined these amendments in 1977 (P.L. 95-217) and 1981 (P.L. 97-117). The 1987 amendments added:

- A new Section 319 to the Act, under which states were required to develop and implement programs to control nonpoint sources of pollution, or rainfall runoff from farm and urban areas, as well as construction, forestry, and mining sites.
- Section 303(d) of the Clean Water Act is of particular concern to the KIPZ planning effort. It requires states to identify pollutant-impaired water segments and develop "total maximum daily loads" (TMDLs) that set the maximum amount of pollution that a water body can receive without violating water quality standards.
- A water quality classification of streams and lakes to show support of beneficial uses.
- Antidegradation policies that protect water quality and stream conditions in systems where existing conditions exceed standards.

Organic Administration Act states that the mission of national forests is to "…provide favorable conditions of water flow…"

National Forest Management Act requires resource sustainability and monitoring.

In the *Multiple-Use Sustained-Yield Act* of 1960 (MUSYA), Congress again affirmed the application of sustainability to the broad range of resources over which the USDA Forest Service has responsibility. MUSYA confirms the USDA Forest Service's authority to manage the national forests and grasslands "for outdoor recreation, range, timber, watershed, and wildlife and fish purposes," (16 U.S.C. § 528), and does so without limiting the USDA Forest Service's broad discretion in determining the appropriate resource emphasis or levels of use of the lands of each national forest and grassland.

NFMA (1982 Planning Rule, Sec. 219.23 Water and Soil Resource)

Forest planning shall provide for:

(a) General estimates of current water uses, both consumptive and non-consumptive, including instream flow requirements within the area of land covered by the Forest Plan;

(b) Identification of significant existing impoundments, transmission facilities, wells, and other man-made developments on the area of land covered by the Forest Plans;

(c) Estimation of the probable occurrence of various levels of water volumes, including extreme events, which would have a major impact on the KIPZ;

(d) Compliance with requirements of the Clean Water Act, the Safe Drinking Water Act, and all substantive and procedural requirements of Federal, State, and local governmental bodies with respect to the provision of public water systems and the disposal of waste water;

(e) Evaluation of existing or potential watershed conditions that will influence soil productivity, water yield, water pollution, or hazardous events; and

(f) Adoption of measures, as directed in applicable Executive orders, to minimize risk of flood loss, to restore and preserve floodplain values, and to protect wetlands.

Forest Service Manual Direction (Policy): The Forest Service manual contains direction to maintain and improve watersheds by using an integrated approach to identify specific watersheds as a priority for protection and management and for improvement.

Executive Orders 11514, 11988, and 11990 apply to floodplain management and wetland protection: The objectives of these orders are:

- To reduce risk of flood loss.
- To minimize impacts of floods on human safety, health, and welfare.
- To minimize destruction, loss, and degradation of wetlands.
- To preserve and restore the natural and beneficial values of floodplains and wetlands.

Laws and Regulations for Aquatic Species (Fisheries and Amphibians)

The Endangered Species Act (ESA) (1973) as amended: Section 7(a)(1) supports biotic sustainability by requiring that, "All…Federal agencies shall …utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species…"

Section 7(a)(2) of ESA includes direction that Federal agencies, in consultation with the United States Fish and Wildlife Service, will not authorize, fund, or conduct actions that are likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat.

Similarly the *National Forest Management Act* (NFMA) (1976) directs the Forest Service to manage for a diversity of habitat to support viable populations (36CFR219.19). Regulations further state that the effects on these species and the reason for their choice as management indicator species need to be documented (36CFR219.19(a)(1).

The 1969 *National Environmental Policy Act* (NEPA) requires analysis of projects to insure the anticipated effects upon all resources within the project area are considered prior to project implementation (40CFR1502.16).

The recreational value of aquatic biota is acknowledged by *Executive Order 12962* (June 7, 1995) states objectives "to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities by: (h) evaluating the effects of Federally funded, permitted, or authorized actions on aquatic systems and recreational fisheries and document those effects relative to the purpose of this order". (Recreational fisheries are discussed in the Recreation and the Social and Economic sections.)

Finally, *Forest Service Manual Direction (Policy)* contains direction on species and habitat management that supports recovery of listed species and maintenance of viable populations on NFS lands.

Forest Service Strategic Plan

Goals of the Forest Service Strategic Plan (USDA 2000a) as it relates to aquatic sustainability include:

Goal 1 "Ecosystem Health" states: "Promote ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grasslands and watersheds."

> *Objective 1.a states*: Improve and protect watershed conditions to provide the water quality to support ecological functions and intended beneficial water uses.
>
> *Objective 1.b states:* Provide ecological conditions to sustain viable populations of native and desired nonnative species and to achieve objectives for Management Indicator Species (MIS)/focal species.

Goal 2 "Multiple Benefits to People" states: "Provide a variety of uses, values, products, and services for present and future generations by managing within the capability of sustainable ecosystems."

The Forest Plans and Monitoring and Evaluation

Idaho Panhandle Forest Plan

Forest Plan monitoring and evaluation supports the need for restoration strategies. The "Summary of findings from Forest Plan Monitoring for 1988 through 1998" (USDA 1998b) concluded the following:

- Many highly roaded watersheds continue to produce sediment, which affects water quality and fish habitat.
- Bull trout and westslope cutthroat trout have become concerns.
- The forest has adopted a management philosophy based upon ecosystems with major emphasis on the restoration of those ecosystems.

Ecosystem restoration activities described in the Forest Plan Monitoring and Evaluation Reports (and as identified in the scientific assessment of the Interior Columbia River Basin) include broad restoration actions. One example would be to restoring watershed function and aquatic habitats to provide a connection between aquatic strongholds (existing populations of native fish species) (USDA Forest 1998b, 2000f, 2002c).

Kootenai Forest Plan

The 1987 Forest Plan directs the Forest to monitor for the effects of implementing the Forest Plan. The monitoring objective is to determine whether plan implementation maintains the aquatic environment to the degree that it will continue to support beneficial uses. Monitoring items specific to aquatic resources are listed below and more complete information can be found in the KNF Forest Plan (USDA 1987a, Volume 1, pps. IV-6 thru IV-13):

- Provide habitat capable of supporting recovered populations of T & E species, and cooperate in recovery efforts (C-7),
- Ensure that the intent of riparian management goals are met (C-9),

- To assure that changes in fish habitat and numbers do not exceed those predicted (C-10),
- To determine if Regional and project Soil & Water Conservation Practices are adequate to meet State water quality standards (F-1),
- To determine sediment impacts on water quality and fishery habitat (F-2),
- To determine the cumulative level of water yield increases and the resultant effect on stream channels (F-3),
- To determine changes in site quality due to surface displacement and soil compaction (F-4).

Monitoring item C-7 relies heavily on information gathered by other agencies associated with the Recovery Plans for T & E species. This item consists of compiling other information sources and incorporating that information into the annual monitoring Report.

Items C-9 and F-1 document the level to which the forest implements INFISH and BMP standards respectively. These items show a very high compliance with Forest Plan direction in this area; however, there is no way to determine effectiveness with regard to watershed condition. Item F-1 shows a high degree of onsite effectiveness but there is no documentation as to how that translates into overall watershed condition.

Items C-10 and F-2 have long been identified as inconclusive with regard to meeting their intended purpose. The standing recommendation for these two items is that they be modified into one item, C-11, that focuses on validation monitoring capable of identifying trends in the aquatic condition.

Item F-3 has shown that water yield in some surveyed watersheds has exceeded Forest Plan guidelines due to many factors since 1988.

Item F-4 has shown that detrimental disturbance within harvest units has been consistent with Forest Plan Guidelines.

Watershed Setting and History

Plate tectonics, volcanism, glaciation, weathering, erosion, and sedimentation processes over the past 1.5 billion years have resulted in the present mountain ranges, river courses, and watershed divides that characterize the KIPZ. Drainages have been designated as Hydrologlic Unit Codes (HUCs) according to their relative size. As shown in figure 1-27, a Sub-basin is a HUC4, watersheds are HUC5 and sub-watersheds are HUC6 (Figure 1-27).

Water, sediment, solutes, and organic material derived from hillslopes and their vegetative cover flow into and through streams and rivers. The shape and character of stream channels constantly and sensitively adjust to the flow of these materials by adopting distinctive patterns such as pools and riffles, meanders, and braids (Leopold et al. 1964). The vast array of physical channel characteristics, combined with energy and material flow, provides diverse habitats for a wide variety of aquatic and riparian dependent species.

The varied topography within the KIPZ, coupled with the irregular occurrence of channel-affecting processes and disturbance events such as fire, debris flows, landslides, drought, and extreme floods, results in a mosaic of river and stream conditions that is dynamic in space and time under natural conditions (Reeves et al. 1995). The primary consequences of most of these disturbances are to directly or indirectly provide large pulses of sedimentation and wood into stream systems. As a result, most streams and rivers in the KIPZ probably undergo cycles of channel change on a timescale ranging from years to hundreds of years in response to episodic inputs of wood and sediment. Many aquatic and riparian species are dependent on the dynamic nature of stream channels (Federal Register, 2000).

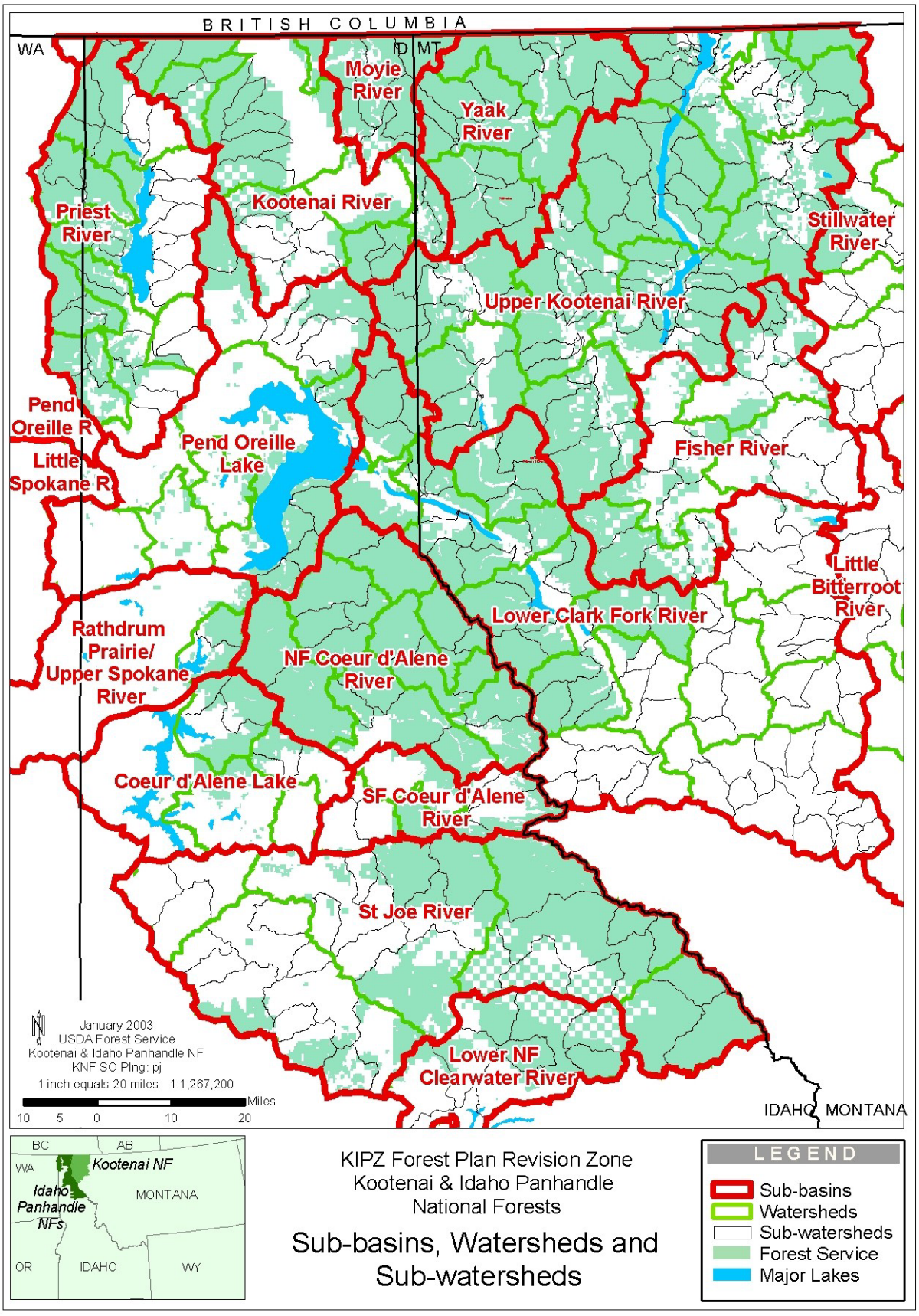


Figure 1-27: Sub-basins (4th-code HUCs), Watersheds (5th-code) and Sub-watersheds (6th-code)

All of the streams in the KIPZ eventually are tributary to the Columbia River. The major sub-basins within the KIPZ are the Upper Kootenai River, the Lower Clark Fork and Pend Oreille River, the St. Joe River and the Coeur d'Alene River that are the source for the Spokane River, and the Little North Fork of the Clearwater River (a Snake River tributary). Most surface runoff is a result of annual spring peak discharges caused by melting snow. However, the KIPZ is affected by distinct marine influences from the Pacific coast, where warm moist air masses often invade the region during the winter. This sometimes results in rapid snowmelt augmented by rain leading to sharp mid-winter peak flows.

Planning Questions for Watersheds and Aquatic Species

Planning questions have been developed to provide context to this revision topic. These questions are followed by a description of the historic and current conditions and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.

For the KIPZ Forest Plan Revision, aquatic sustainability is based on two primary components: (1) watershed condition and integrity, and (2) aquatic biota condition and integrity. These two assessments will be combined to estimate aquatic sustainability conditions for all 6th level watersheds (HUC 6) across the KIPZ. This approach combines the physical characteristics of watersheds with the biological communities that are dependant on them. Both components are essential to sustain aquatic resources.

Planning Question – What are the historic and current conditions of the watershed systems, and what are trends of the watershed conditions?

Historic and Current Condition of Watersheds

The watershed systems in the inland northwest evolved over millions of years under the influence of many forces and processes. But the character and resiliency of the systems were honed and the climate and geological processes following the last ice age, about 10,000 years ago. Since then the watershed systems have been subject to a wide array of disturbances and events. These disturbances have often been intense and cyclic in nature and may appear to recur somewhat randomly, but with predictable frequency. The watersheds and their dependent resources have evolved under this "pulse" disturbance regime so that they can effectively respond to those disturbances over time while sustaining their long-term functions, processes, and condition.

Around the beginning of the 20th century, the influx of human populations began in the inland northwest along with the development of the land and resources to support those populations. This has resulted in many new disturbances to the watershed systems; and the pattern of many of those disturbances has tended to be a more sustained or "press" disturbance regime. Many of those disturbances tend to mimic historic "natural" processes, but the frequency and intensity has been greatly amplified. In some cases, the watershed systems have begun to radically adjust to those press disturbances, or have become altered by them; resulting in severe stresses in their capability to support dependent resources.

Within the KIPZ, human activity has extensively altered stream channels by direct modification such as canalization, wood removal, diversion, dams, log drives, and encroaching structures such as roads, railways, bridges, and culverts. Humans have also indirectly affected the incidence, frequency, and magnitude of disturbance events. This has affected inputs and outputs of sediment, water, and vegetation. These factors have combined to cause pervasive changes in channel conditions throughout many parts of the KIPZ, resulting in aquatic and riparian habitat conditions measurably different from those that existed prior to human development. Natural (primarily wildfire) and human-caused (timber harvest and road construction, mining, dams, introduction of non-native species, recreation, and grazing) disturbances over

the last century have led to changes in the physical watersheds and in the fish and amphibians dependent on them (Lee et al. 1997).

Roads can have some of the greatest effects to watersheds and aquatic biota. Roads can change the runoff characteristics of watersheds, increase erosion and sediment delivery to streams, and alter channel morphology (Furniss et al. 1991). These direct effects lead to changes in habitats for fish and amphibians. Roads also often fragment the habitat of these animals, and may be a significant cause of death for migrating amphibians. Although current BMPs for road construction are designed to minimize the damage to watersheds, many miles of road existing on the landscape were not built to these standards or are no longer maintained. As a result, these roads either continue to degrade watersheds through chronic erosion or are at risk for mass failure from crossings or locations on sensitive landtypes.

Approximately 168 stream segments or water bodies on the two forests have been listed by the States of Idaho and Montana as impaired under section 303(d) of the Clean Water Act (as of Nov. 2002, 123 on the IPNFs and 45 on the KNF). Impaired water bodies are described in subsection 303(d) of the Clean Water Act as water quality (including stream conditions) that do not meet State water quality standards, which is a broad term that includes water quality criteria, designated uses, and antidegradation policies (Figure 1-26 at the beginning of this section).

The primary watershed unit (hydrologic unit) upon which watershed condition and management response has been assessed is the 6th-code HUC (hydrologic unit code) or "sub-watershed." The watershed condition classifications are described in the following section. Based on watershed analyses and geographic assessments conducted on both Forests, the expected or apparent watershed condition of the sub-watersheds are summarized in the following table and in Figure 1-25:

Table 1-22: Distribution of Expected Watershed Condition by Sub-Watershed

	Idaho Panhandle National Forest	Kootenai National Forest
Number of sub-watersheds	122	144
Watershed Condition		
Properly Functioning Condition	26%	17%
Functioning, At-Risk	46%	61%
Not Properly Functioning	28%	22%

Methods to Determine Watershed Condition and Trend

The concepts of watershed condition are consistent with those defined in the Proposed Unified Federal Policy for Ensuring a Watershed approach to Federal Land and Resource Management (2000g). These will be used to indicate the status and trend of the watershed based on:

- Physical characteristics and processes (e.g., hydrologic, geomorphic, landscape, topographic, vegetative cover, and aquatic habitat)
- Water flow characteristics and processes (e.g., volume and timing), and
- Water quality characteristics and processes (e.g., chemical, physical and biological), as it affects water quality and water resources.

A variety of physical measures that reflect the inherent (i.e., natural) sensitivity and resiliency of watersheds, combined with measures based on human-caused disturbance histories of those watersheds will be assessed at the sub-watershed (6^{th}- code hydrologic unit) scale. The measures focus on the slopes (the land system), the riparian areas, and the streams and lakes within the watershed. This information will then be further refined using additional field measurements, monitoring, and professional judgment based on scientific principles to determine the condition of each 6^{th}-code watershed, i.e., whether it is:

- In properly functioning condition;
- Functioning at risk; or
- Not properly functioning.

Watersheds in **"properly functioning condition"** (*PFC*) are essentially in good condition in terms of physical, hydrologic, and water quality characteristics and function. PFC watersheds have generally high integrity in terms of those same characteristics and processes. The streams are in dynamic equilibrium with their watersheds (i.e. they adjust appropriately to natural fluctuations of stream flow and sediment loading), and the watershed systems are fully functional, operating within their potential. The systems are adjusting to disturbances within their apparent natural ranges of variability; and they can be expected to respond to disturbances with a trend toward a good condition within a reasonable time period.

Watersheds that are **"functioning at risk"** (*FAR*) continue to have adequate physical, hydrologic and water quality integrity; however, present or ongoing adverse disturbances are likely to compromise that integrity if the present adverse disturbances are not modified or corrected. FAR watersheds have at least moderate physical, hydrologic, and water quality integrity even though they may have been substantially compromised by adverse disturbances.

Watersheds that are **"not properly functioning"** (*NPF*) are operating and adjusting outside what can be considered dynamic equilibrium; or the physical, hydrologic, or water quality integrity has been so compromised that restoration efforts may be difficult without significant funding and very long recovery time periods. Watershed systems that are NPF are essentially not physically capable of fully supporting beneficial uses. These systems will likely require substantial intervention and/or extremely long recovery periods to restore their capability to fully support beneficial uses. They may contain aquatic resources that are seriously degraded or that are not likely to sustain themselves over time.

Planning Question – What are the historic and current conditions of the aquatic species, and what are the trends?

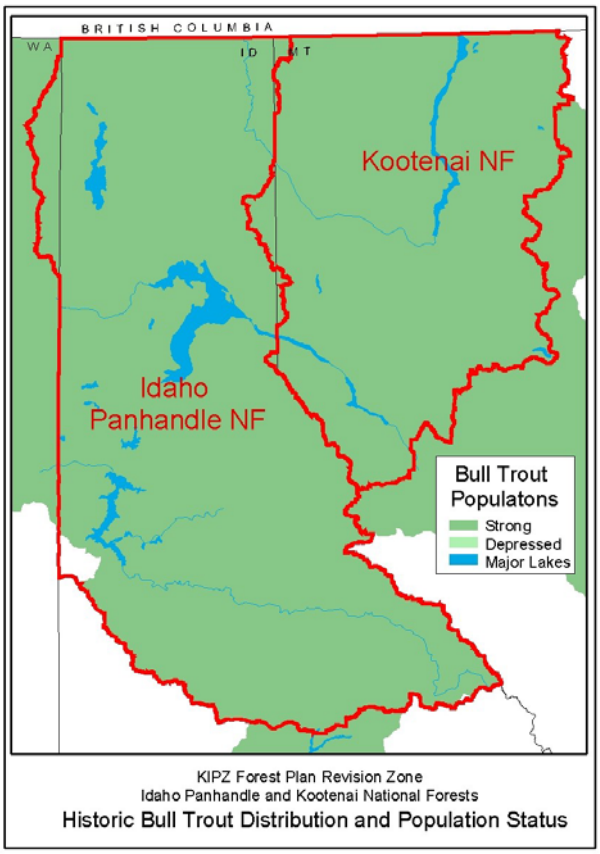
Historic and Current Condition of Aquatic Species

Species distribution and abundance have changed dramatically from historic conditions. There are indications that those historic distribution and abundance shifts have continued during the term of the 1987 Forest Plans; however, the rates of change may have been somewhat tempered with improved protection practices including the INFISH amendments.

While there are many known and unknown causes for this, changes in the physical environment and the subsequent habitat alteration have been the main contributors. The following are general statements about the current conditions of some native fish and amphibian species in the KIPZ. There are six fish species and three amphibian species on the KIPZ listed as threatened or endangered under ESA, or that are on the Regional Forester's Sensitive Species list. Their appearance on these lists indicates the overall viability of these species at risk. Two fish species (bull trout and westslope cutthroat trout) are also listed as Management Indicator Species (MIS) in the 1987 IPNFs Forest Plan.

Fish

Bull trout: Bull trout are listed as Threatened under ESA. According to Lee et al. (1997), they are widely distributed across the Columbia River Basin, although their estimate current range is about 60% of the historic range. This species is in widespread decline and many local extirpations have occurred across their range. Important strongholds include the Upper Clark Fork Ecological Reporting Unit (ERU), Northern Glaciated Mountains ERU, and Lower Clark Fork ERU on the KIPZ. Watersheds that are currently predicted to be strong spawning and rearing areas represent six percent of the historic range. Migratory life histories have been lost or limited throughout the range.



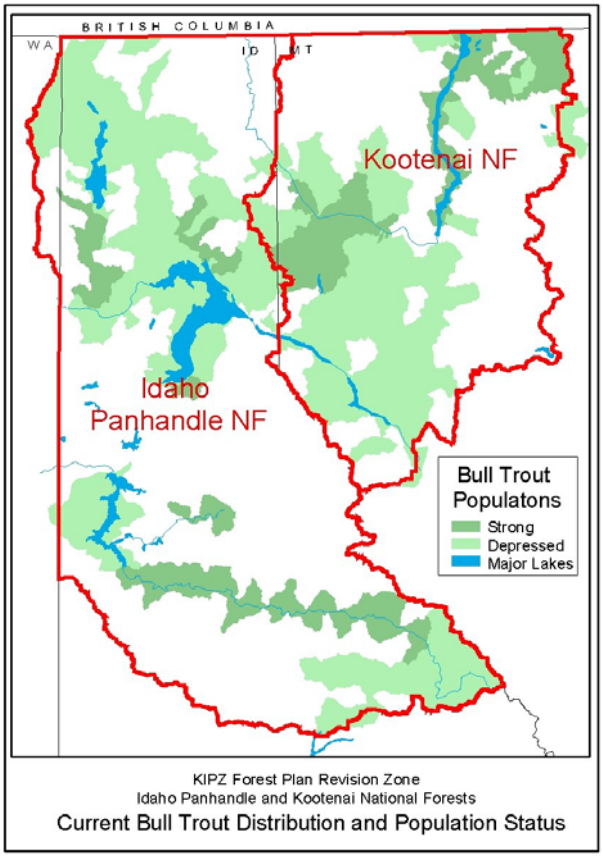


Figure 1-28 (left): Probable bull trout historic range (from Lee et al. 1997)
Figure 1-29 (right): Current bull trout distribution and population status

Westslope cutthroat trout: This subspecies of cutthroat trout is on the Regional Forester's Sensitive Species list. This subspecies was petitioned for listing under ESA, although listing was determined to be "not warranted" by the U. S. Fish and Wildlife Service. It is currently going through a court ordered status review. Westslope cutthroat trout are still widely distributed but remaining populations may be seriously compromised by habitat loss and genetic introgression (Lee et al. 1997). This subspecies is estimated to occur in 11% of its historic range in Idaho (Rieman and Apperson 1989), and 27% of its historic range in Montana, although genetically pure populations occur in only 2.5% of its Montana historic range (Liknes and Graham 1988). However, Lee et al. (1997) estimated that westslope cutthroat trout still occupy 80% of its historical range of the Montana portion of the Interior Columbia River Basin, although they agree there are few strong populations remaining.

Most of the populations on the KIPZ are depressed. Migration barriers (dams, irrigation diversions, other) have isolated or eliminated habitat once available to migratory populations. Small often isolated populations persist throughout the range, but the long-term outlook for many of these populations is poor. The core of strong populations is associated with the Central Idaho Mountains ERU (not in KIPZ). The Upper Clark Fork and Northern Glaciated Mountains ERUs (in KIPZ) are important regions, but are more fragmented and restricted to a relatively smaller portion of the historical distribution (Lee et al. 1997).

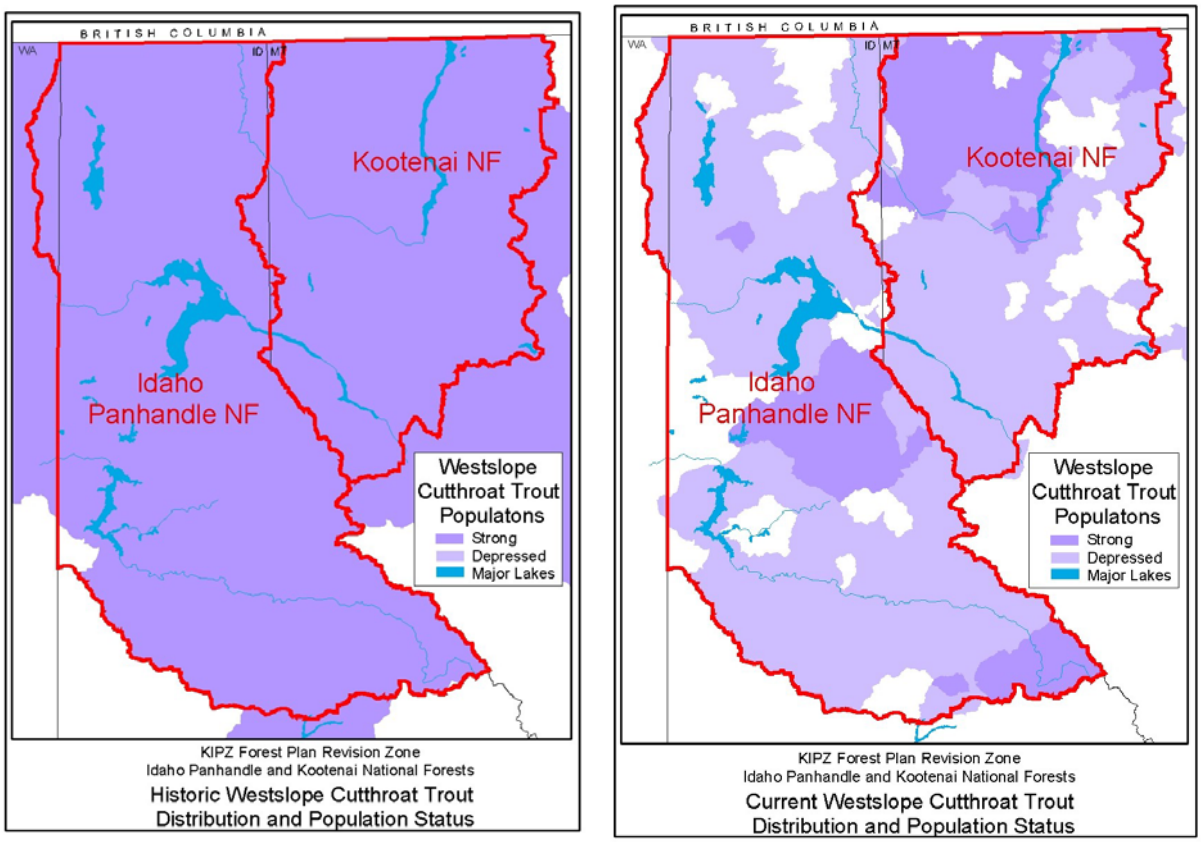


Figure 1-30 (left): Probable historic westslope cutthroat trout distribution (Lee et al. 1997)
Figure 1-31 (right): Current westslope cutthroat trout distribution and population status

Interior Redband Trout: Interior redband trout are on the Regional Forester's Sensitive Species list. The allopatric form (i.e., not found in the same areas as steelhead trout) of interior redband trout is found on the KIPZ. Historically, this was the most widely distributed salmonid in the Columbia River Basin, although it was not widespread on the KIPZ. Current populations on the KIPZ range from strong to depressed. Hybridization and competition are its main threats.

Torrent Sculpin: Torrent sculpin is on the Regional Forester's Sensitive Species list. Little is known about this species, including its historic distribution. Major risk factors are believed to be pollution, increased water temperatures, and sedimentation (Lee et al. 1997). A study is currently underway on the IPNFs that is designed to generate distribution and habitat information.

Burbot: Burbot, also known as ling cod, are listed as a sensitive species by the Regional Forester, and has been petitioned for listing under ESA. This species is found only in the Kootenai River on KIPZ. This

population is very depressed from historic levels. Changes in hydrologic flows caused by Libby Dam are the biggest threat to this population.

Kootenai River White Sturgeon: Kootenai River white sturgeon are listed as Endangered under ESA. This species is restricted to 695 river kilometers of the Kootenai River. These fish have not successfully spawned in recent years. Changes in flows from Libby Dam are the biggest threat to population. Land management activities are considered a secondary impact to populations of this species (Lee et al. 1997).

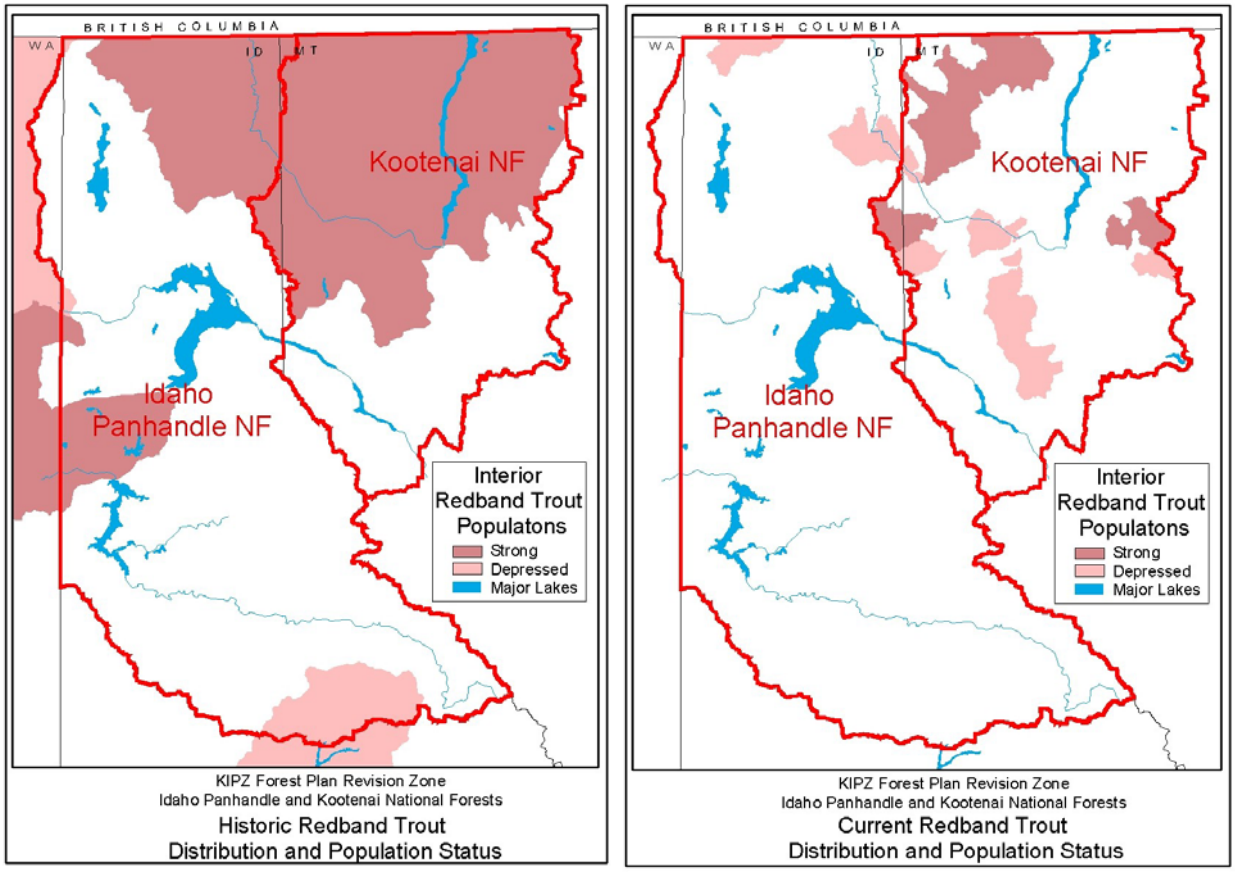


Figure 1-32 (left): Probable interior redband trout distribution (from Lee et al. 1997)
Figure 1-33 (right): Current interior redband trout distribution and population

Amphibians

Each of the following amphibians are listed as sensitive by the Regional Forester:

Boreal Toad: This species is in widespread decline throughout its range for unknown reasons. The species was once common and widespread in Western Montana, but now is uncommon and local. Direct measures of population trend on the Kootenai are not available. Incidental breeding occurs on IPNFs. Although historic distribution is largely unknown; this species has occurred at Priest Lake Basin, Priest River below Priest Lake, Cocolalla Creek, Lower Coeur d'Alene River, and Little NF Clearwater River on the IPNFs. Past land management activities (timber harvest and road construction) in and near streams and wetlands have likely resulted in habitat loss. Because of the species' specific habitat association, and the number of unoccupied historical sites, it is possible that populations have declined or even been extirpated locally. Migration barriers, especially roads, have isolated habitats, probably impacting reproduction and/or winter survival. Mortality from road traffic may be significant near breeding ponds.

Coeur d'Alene Salamander: This species is endemic to the IPNFs, northwest Montana, northeast Washington and southern British Columbia. On the IPNFs, it has been found on the St. Joe watershed. The population size on the KNF is unknown. Cassirer et al. (1994 pg. 52) reported thirteen Coeur d'Alene salamander sites on the KNF. Werner and Reichel (1994 pg. 9 and 1996 pp. 65-58) show additional sites. Past land management activities, timber harvest and road construction in and near streams have likely resulted in habitat loss. Because of the species' specific habitat association, it is possible that populations have declined or even been extirpated locally.

Northern Leopard Frog: This species is declining across the U.S. Widespread extirpations are known from Alberta, Wyoming, Colorado, Washington, Idaho, and Oregon. The decline is possibly due to habitat loss and collection for scientific study. Bullfrog and fish introductions, acid rain, ozone depletion, and immune system suppression have also been suggested as causes for frog extirpations. It is unknown if this species occurs on IPNFs, although they have been found on non-Forest land in northern Idaho counties. Albeni Dam flooded much historic habitat around Lake Pend Oreille in the early 1950s. Only one active site is known on the KNF, although there is historical evidence of this frog at five additional locations. The historic distribution of this species is largely unknown.

Methods to Determine Condition and Trend of Aquatic Biota

Habitat and population information will be analyzed for native and desirable non-native aquatic species. In addition, biological significance and habitat connectivity will be determined for native species. An assessment of this data, combined with additional field measurements, monitoring, and professional judgment based on scientific principles will be used to determine the condition and trend of aquatic biota at the 6th- code watershed (HUC 6) scale. This information will then be integrated with the watershed condition findings to aid in answering the Planning Questions.

In this part of the assessment, strategies will be developed to maintain and protect properly functioning areas and to restore those areas that are not, thereby improving the KIPZ contribution to aquatic sustainability. Other factors will be integrated, including non-Forest Service agency restoration priorities (e.g., State and EPA TMDL plans and priorities, national "large watershed" projects, State bull trout conservation plans, and westslope cutthroat trout conservation strategy MOU between Forest Service Region 1 and the state of Montana), as well as a determination of feasibility of restoration, to aid in setting restoration priorities for aquatic systems.

Priorities for aquatic restoration will then be integrated with other resource priorities (likely during analysis at the watershed [EAWS] scale) to further refine management direction.

Planning Question – What are the implications of continuing under current management direction for Watersheds and Aquatic Species?

Legacy effects from past timber harvest, mining, and other human-caused disturbances continue to effect watershed condition and health. The 1987 Forest Plan direction, as amended by INFISH (USDA 1995d), reduces the risk to watersheds and aquatic biota from new and ongoing activities. For some resources, INFISH standards and guidelines contain general direction for repairing past damage (roads, grazing, recreation), although it is lacking for other resources (timber harvest, mining). Generally, under the direction of the 1987 Forest Plans, the intensity and the risks associated with new and ongoing developments and man-induced disturbances has been and will be greatly reduced as compared to the last several decades. However, they are likely to continue to accumulate, and the press-nature of those disturbances still exists.

The extent and distribution of legacy disturbances is not likely to be effectively reduced on a watershed scale. Certainly, there will continue to be local improvements; but watershed-scale improvements will progress slowly and perhaps haphazardly. Without specific direction and emphasis in the Forest Plan, watershed restoration may tend to be prioritized and directed by more visible developmental and commodity-based resource decisions.

Current condition and trends show that native aquatic species are in decline. Land management practices, particularly historic practices, while not the only cause (introduction of non-native species, influence of hatchery fish, and harvest are other contributing causes), have had major influences. Under the current direction, some areas will likely see a slow improving trend, others will continue to chronically degrade, and the viability of native species will continue to be at risk.

Revision Topic – Inventoried Roadless Areas and Proposed Wilderness Areas

Need for Change

This subject is a Revision Topic because of the continuing controversy associated with the management of Inventoried Roadless Areas (IRAs) and proposed Wilderness Areas, and because roadless areas cover a large part of the two forests. Within KIPZ, there are 91 IRAs totaling almost 1.5 million acres – 1/3 of the KIPZ (see Figure 1-34)

IRAs are defined as "Undeveloped areas typically exceeding 5,000 acres that met the minimum criteria for wilderness consideration under the Wilderness Act and that were inventoried during the Forest Service's Roadless Area Review and Evaluation (RARE II) process, subsequent assessments, or forest planning. These areas identified in a set of inventoried roadless area maps, contained in the Forest Service Roadless Area Conservation Rule, Final Environmental Impact Statement, Volume 2, dated November, 2000, which are held at the National Headquarters of the Forest Service, or any update, correction, or revision of those maps." (USDA Forest Service 2000c)

The 1987 Forest Plans provided direction to build roads and harvest timber in certain IRAs. That has proven to be very controversial, and the amount of timber harvest and road construction that was projected in the Forest Plans has not occurred. In the KNF 1987 Forest Plan, 132,600 acres (33%) of the IRAs were categorized as suitable for timber harvest and 271,600 acres (67%) were categorized as unsuitable (slight difference from 1987 totals due to rounding). In the IPNFs 1987 Forest Plan, 610,382 acres (71%) of the IRAs were categorized as suitable for timber harvest and 243,418 acres (29%) were categorized as unsuitable. Controversy continues to accompany most proposals to harvest timber, build roads, or otherwise develop IRAs. Comments heard during the first round of Forest Plan Revision open houses in June of 2002 confirmed that IRAs continue to be a topic of great interest.

Laws and Regulations

The purpose of wilderness and the broad direction for managing wilderness are stated in the Wilderness Act of 1964. Further requirements for evaluation and designation of wilderness are in 36 Code of Federal Regulations CFR 219.17, Forest Service Manual 2320, and Forest Service Handbook 1909.[redacted]hapter 7.

On January 12, 2001, the Roadless Area Conservation Rule was published in the Federal Register (FR Doc. 01-17249). This rule prohibits road construction, road re-construction, and timber harvest in IRAs on NFS Lands. The intent of this rule is to provide lasting protection for IRAs within the NFS in the context of multiple use management (Federal Register, 2001).

On May 10, 2001, the U. S. District Court for the District of Idaho enjoined the USDA from implementing the Roadless Area Conservation Rule. This decision by the District Court was appealed to the United States Court of Appeals for the Ninth Circuit.

On June 7, 2001, the Chief of the Forest Service and Secretary of Agriculture issued a letter concerning interim protection of IRAs, stating "the Forest Service is committed to protecting and managing roadless areas as an important component of the NFS. The best way to achieve this objective is to ensure that we protect and sustain roadless values until they can be appropriately considered through forest planning". (Bosworth 2001)

On December 12, 2002 the Ninth Circuit Court of Appeals reversed the May 10, 2001 ruling by the U. S. District Court that had enjoined USDA from implementing the Roadless Area Conservation Rule. At this time, the Court is still considering a rehearing request. They have not yet issued a mandate to lift the injunction, therefore the Forest Service remains enjoined from implementing the Roadless Area Conservation Rule. As long as the Roadless Area Conservation Rule is not in effect, the agency policy for the protection and management of Inventoried Roadless Areas is contained in Interim Direction at Forest Service Manual (FSM) 1925.

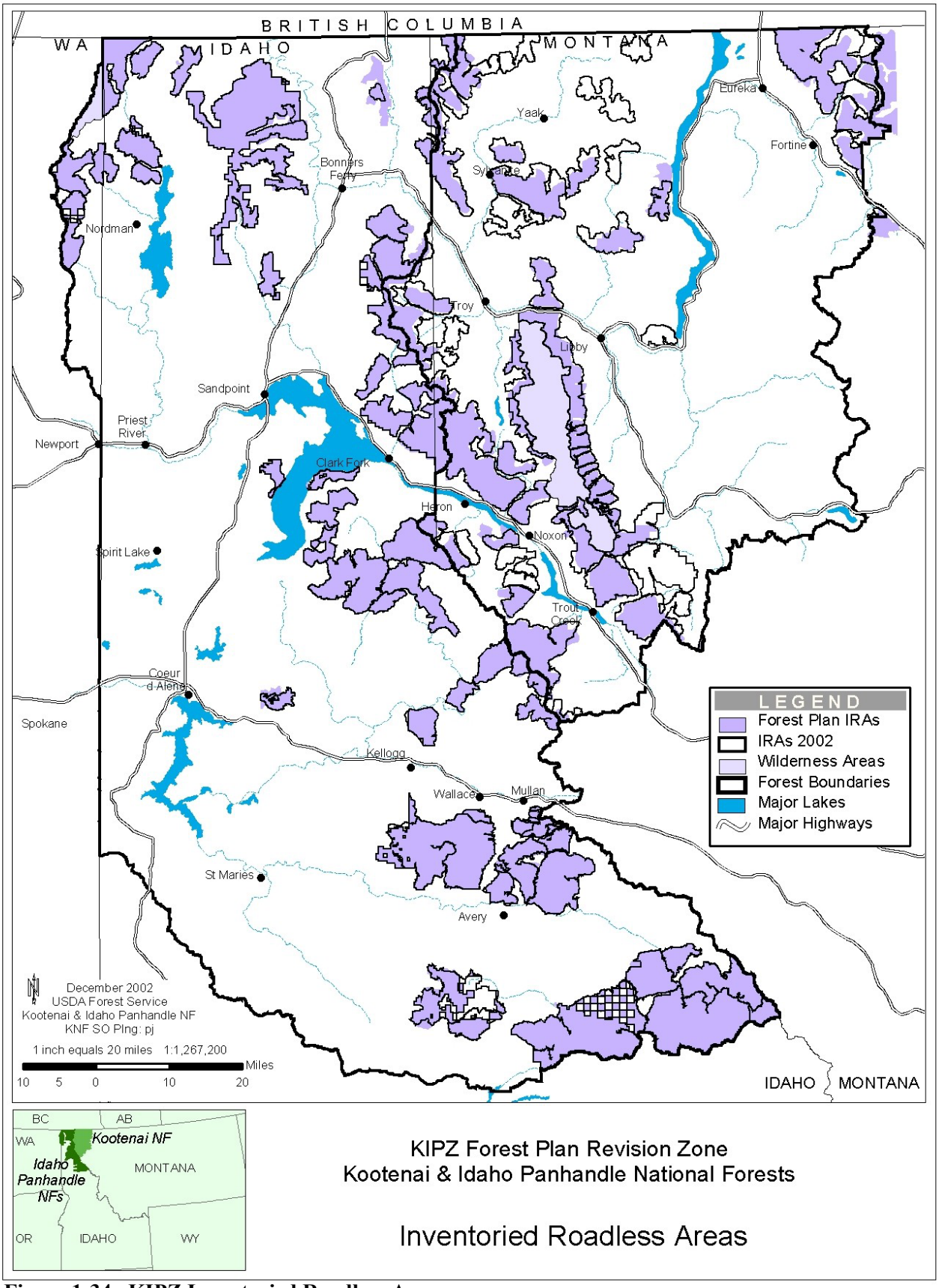


Figure 1-34. KIPZ Inventoried Roadless Areas

Forest Service Strategic Plan

The following objectives stated in the Strategic Plan (USDA 2000a) relate to the management of IRAs and proposed Wilderness Areas. The number of objectives is greater than for some other revision topics because IRAs can be managed for a wide variety of goals. The goals and objectives listed below are the ones that are compatible with the Roadless Area Conservation Rule direction:

Goal 1 "Ecosystem Health" states: Promote ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grassslands and watersheds.

> *Objective 1.a states:* Improve and protect watershed conditions to provide the water quality and quantity and the soil productivity necessary to support ecological functions and the intended benefical water uses.
>
> *Objective 1.b states:* Provide ecological conditions to sustain viable populations of native and desired nonnative species and to achieve objectives for Management Indicator Species/focal species.

Goal 2 "Multiple Benefits to People" states: Provide a variety of uses, values, products, and services for present and future generations by managing within the capability of sustainable ecosystems.

> *Objective 2.a states:* Improve capability of the Nation's forests and grasslands to provide diverse, high-quality outdoor recreation opportunities.
>
> *Objective 2.b states:* Improve the capability of wilderness and protected areas to sustain a desired range of benefits and values.

The Forest Plans and Monitoring and Evaluation

IRAs are not Forest Plan monitoring items on the IPNFs. As part of the annual Forest Plan Monitoring, the KNF has tracked changes to IRAs since 1988. During the first nine years of the KNF Forest Plan, there was a total of 5,270 acres of development by timber sales or road construction within IRAs. However, since the end of 1996, no development has occurred in the IRAs on the KNF.

Planning Questions For IRAs and Proposed Wilderness Areas

Planning questions have been developed to provide context to the IRA and proposed Wilderness Areas revision topic. These questions are followed by a description of the historic and current condition and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.

The KIPZ Forest Plan Revision will address two issues associated with IRAs: (1) identification of proposed Wilderness Areas, and (2) management of all IRAs – including recommended wilderness and other management opportunities. These two issues are related, but presented separately for clarity.

> **IRA management:** IRA management will be based on several items, including national roadless area direction, public comment and Forest Plan direction. A recent decision by the Ninth Circuit Court of Appeals directs the agency to implement the Roadless Area Conservation Rule. This Rule is considered to have the official roadless area inventory for the Forest Service. See Tables 1-23 and 1-24 in this section.
>
> **Wilderness Evaluations:** Examination of roadless areas for wilderness potential is a requirement of Forest Plan Revisions. For the KNF, the IRA coverage submitted for the Roadless Conservation EIS

was felt to be an adequate place to begin the wilderness evaluation process (refer to Table 1-24). For the IPNFs, the coverage submitted for the Roadless Conservation EIS did not accurately display the results of all the NEPA projects that had occurred in these areas since 1987. For this reason, some minor refinements were needed to show those changes and to have a more accurate product to use for the wilderness evaluation process (refer to Table 1-23).

Historic and Current Condition of IRAs

Since the Wilderness Act of 1964, there has been a great deal of interest and controversy associated with identifying and recommending to Congress areas for addition to the National Wilderness Preservation System (NWPS). The IRAs have been the main focus for possible additions. Management options for roadless areas, other than recommended wilderness, are also a significant issue.

In 1972, the Forest Service initiated a review of NFS roadless areas larger than 5,000 acres, known as the Roadless Area Review and Evaluation I (RARE I), to determine their suitability for inclusion in the NWPS. In 1977, a second review process, RARE II, began. It resulted in a nationwide inventory of roadless areas, which was completed in 1979. The forest planning process used during the development of the 1987 Forest Plans for the KNF and IPNFs further refined some of the areas delineated by the RARE II process.

For IRAs, the historic condition is the acreage of each IRA as listed in the 1987 Forest Plans. The current status is the acreage of each area as they presently occur (refer to Tables 1-23 and 1-24).

The KNF began a reinventory of their roadless areas in 1994 and completed it in 1999. This inventory was complete at the time of the Roadless Area Conservation Rule and was the coverage used for that analysis.

The IPNFs coverage submitted for the Roadless Area Conservation Rule, because of the short response time, did not show where all NEPA projects since 1987 had reduced IRA acreages. Some portions of that coverage accurately depicted the current situation while other portions did not. The Forest has recently updated this coverage to show these changes (refer to Table 1-23).

Changes in IRA Acreages from 1987 to 2003

Listed below are tables showing acreage figures for each IRA on each forest. The IPNFs IRAs, (Table 1-23), lists this information for three time periods:

(1) 1987 Forest Plans

(2) 2000 Roadless Area Conservation Rule

(3) 2003 coverage, which accurately displays the current situation. This most recent coverage will be used for the proposed wilderness evaluation for Forest Plan Revision.

The KNF IRAs (Table 1-24) has two columns:

(1) 1987 Forest Plans

(2) Roadless Area Conservation Rule. As indicated previously, the KNF IRA coverage had been updated prior to the Roadless Area Conservation Rule, displays the current situation and is an appropriate starting point for proposed wilderness evaluations

Several factors contribute to acreage differences from 1987 to 2003. Some IRAs had a reduction in size because development by timber sales and/or road construction occurred during the last 15 years within those areas. Map errors associated with the 1980's mapping were also corrected. Other increases are due to land exchanges, or because development of some kind that was expected to occur at the time of the Forest Plans did not happen.

Some differences in acreage are due to the methods used to delineate and calculate the acreages for these IRAs. In the 1980's, the IRAs were delineated by hand, drawing lines on ½ inch/mile (1:126,720) maps. Our current maps have been prepared at 2.64"/mile (1:24,000) map scale using GIS technology.

Because of the re-inventory the KNF did in the 1990's, some IRAs on that forest have had increases in acreage and some IRAs are now included that were not part of the original KNF Forest Plan. Contiguous areas were added to some roadless areas on the KNF following the definitions included in the Regional Protocol for IRA delineation.

Idaho Panhandle National Forests IRAs

The IPNFs currently has 48 IRAs, which are listed in the following table and shown on Figure 1-34. The acreage figures for specific IRAs vary for the three time periods for the reasons outlined in the previous section. Acreages listed are for the NFS lands within IRAs.

Table 1-23: Idaho Panhandle National Forest Inventoried Roadless Areas (IRAs)

IRA Name and Number	NFS Acres in 1987 Forest Plan	Approximate NFS acres in 2000 Roadless Area Conservation EIS	NFS Acres in 2003 coverage that will be used for proposed Wilderness Evaluation
Little Grass Mountain #121	7,900	7,900	7,966
Blacktail Mountain #122	5,100	5,300	4,965
Upper Priest #123	14,300	13,700	14,008
South Fork Mountain #124	5,400	5,200	5,292
Selkirk (with Long Canyon) #125	102,000	95,800	97,959
Kootenai Peak #126	6,000	4,500	4,974
White Mountain #127	7,800	8,700	7,499
Hellroaring #128	11,800	1,700	1,978
Trestle Peak #129	7,100	7,400	7,274
Beetop #130	11,200	12,900	12,446
East Cathedral Peak #131	22,300	22,900	22,320
Magee #132	34,800	34,100	34,811
Teepee Creek #133	5,100	5,400	5,187
Skitwish Ridge #135	6,300	6,900	4,746
Spion Kop #136	23,700	22,500	22,391
Lost Creek #137	11,300	11,600	11,606
Trouble Creek #138	6,100	5,900	5,950
Graham Coal #139	10,800	10,700	10,290
Maple Creek #141	8,700	8,500	8,674
Stevens Peak #142	4,400	4,600	4,729
Big Creek #143	75,000	74,500	76,347
Storm Creek #144	8,200	8,200	8,228
Hammond Creek #145	16,100	18,700	17,404
Rolland Point #146	6,300	6,400	6,524
North Fork #147	32,100	30,300	31,357

IRA Name and Number	NFS Acres in 1987 Forest Plan	Approximate NFS acres in 2000 Roadless Area Conservation EIS	NFS Acres in 2003 coverage that will be used for proposed Wilderness Evaluation
Grandmother Mountain #148	16,400	24,100	22,347
Pinchot Butte #149	7,000	7,800	8,509
Mosquito Fly #150	15,400	13,200	19,408
Midget Peak #151	7,000	6,400	7,239
Wonderful Peak #152	5,100	5,100	4,938
Continental Mountain #153	6,900	7,700	7,525
Saddle Mountain #154	8,600	7,500	7,765
Packsaddle #155	18,700	17,900	19,309
Hungry Mountain #156	9,600	8,900	8,615
Katka #157	12,400	10,500	10,343
Schafer Peak #160	6,600	6,100	5,894
Blacktail Mountain #161	4,700	4,900	4,830
Mt. Willard/Lake Estelle #173	35,300	32,700	35,000
Mallard Larkins #300	127,100	119,800*	129,376
Meadow Creek/Upr North #302	6,100	4,300*	6,056
Buckhorn Ridge #661	9,600	9,400	9,558
Scotchman Peaks #662	31,800	30,200	32,070
Northwest Peaks #663	5,700	5,400	5,479
Trout Creek #664	8,300	8,400	8,538
Giltedge/Silver Creek #792	300	200	202
Sheep Mountain/Stateline #799	28,000	26,900	27,733
Salmo-Priest #981	20,500	20,300	20,020
Grassy Top #982	12,900	13,300	13,617
IPNFs Total	**853,800**	**825,300* (838,300 with St. Joe WSR acreage added)**	**849,305**

*The figure the Washington Office generated for the Roadless Conservation EIS was 823,000 acres (figure rounded to the nearest 1,000s). This calculation did not include approximately 13,000 acres where the St. Joe Wild and Scenic River flows through the Mallard Larkins and Meadow Creek IRAs. Since the acreage figures for the other two columns have the St. Joe WSR acreage included in those IRAs, for consistency the 13,000 acres is added back to the 823,000. This would result in a total of 836,000 acres. The figures used in the middle column are from a recent Forest recalculation of that same coverage. The figures differ by a very small amount (.2%)

Kootenai National Forest IRAs

The KNF currently has 43 IRAs, which are listed in the following table and shown on Figure 1-34. There were 32 roadless areas identified in the 1987 Forest Plan. Some of the eleven additional roadless areas were analyzed in 1987 but did not meet the criteria at that time; and some areas were first considered as IRAs in the recent reinventory process because of additions to NFS land ownership in that area and other factors.

Table 1-24: Kootenai National Forest Inventoried Roadless Areas (IRAs)

IRA Name and Number	1987 Forest Plan Acres	Current Acreage
Alexander #696	0	6,700
Allen Peak #185	0	29,600
Barren Cr #183	0	14,600
Berray Mtn #672	8,300	9,100
Big Creek #701	0	7,500
Buckhorn Ridge #661	22,000	28,800
Cabinet Face East #671	50,400	51,000
Cabinet Face West #670	10,900	13,700
Cataract Creek #665	17,700	25,400
Chippewa #682	2,300	1,300
Cube Iron #784	1,200	600
Devils Gap #698	0	5,400
East Fork Elk #678	5,000	6,800
Flagstaff #690	9,500	11,100
Galena #677	15,500	19,300
Gold Hill #668	10,700	6,500
Gold Hill West # 176	10,200	15,100
Government Mtn #673	8,600	10,100
Grizzly Peak #667	6,000	7,400
Huckleberry Mtn #699	0	9,000
LeBeau #507	700	1,300
Lone Cliff Smeads #674	6,600	5,100
Lone Cliff West #674a	0	5,300
Maple Peak #141	1,400	3,600
Marston Face #172	6,000	9,100
McKay Creek #676	13,500	15,300
McNeeley #675	7,700	6,700
Mt Henry #666	0	13,600
Northwest Peaks #663	13,400	15,300
Roberts #691	8,000	10,800
Robinson Mtn #164	0	7,000
Rock Cr #693	400	800
Roderick #684	24,800	29,700
Saddle Mtn #168	0	14,700

IRA Name and Number	1987 Forest Plan Acres	Current Acreage
Scotchman Peaks #662	51,900	54,400
Ten Lakes #683	7,100	48,500
Thompson Seton #483	20,100	29,400
Trout Creek #664	31,400	30,900
Tuchuck #482	2,300	2,200
West Fork Elk #692	4,800	5,200
West Fork Yaak #694	0	8,200
Willard Estelle #173	18,500	33,000
Zulu #166	6,400	10,000
KNF Total	**403,300**	**639,100**

Note: The Roadless Area Conservation EIS listed total acres for the Kootenai IRAs as 628,000 because the acres for Northwest Peaks and Ten Lakes Scenic Areas were left out of the total acreages. They have been included with their surrounding IRAs in these Kootenai totals. Some areas of proposed wilderness (MA8) were coded incorrectly in the Roadless EIS in Chippewa and McKay Creek IRAs; these are now coded correctly.

Which IRAs have potential for Wilderness?

The roadless area inventory will be analyzed for proposed wilderness recommendations based on the three tests of capability, availability and need. The result of this analysis will be a list of areas that can be recommended for additions to the National Wilderness Preservation System (NWPS).

Capability The capability of a potential wilderness is defined in Forest Service Handbook (FSH) 1909.12-7.21 as "the degree to which the area contains the basic characteristics that make it suitable for Wilderness designation without regard to its availability or need as Wilderness."

Availability All NFS lands found to meet wilderness capability requirements are generally available for consideration as wilderness. However, this availability is constrained by a determination of the value of and need for the wilderness resource relative to the value of and need for other resources from the site. To be available for wilderness, the wilderness values of the resource, both tangible and intangible, should exceed the value of other resources that formal wilderness designation would preclude.

Need Overview FSH 1909.12-7.23 directs the Forest Service to "determine the need for an area to be designated as Wilderness through an analysis of the degree to which it contributes to the local and national distribution of Wilderness." Need is addressed on a national basis and is evaluated in terms of the geographic distribution of areas, representation of landforms and ecosystems, and the presence of wildlife expected to be visible in wilderness.

Assessment of need may be divided into two major categories: *biological need* (landform representation and plant/animal biodiversity) and *social need* (outdoor recreation opportunities). Only areas determined to be both capable and available for wilderness are to be considered in the need evaluation for recommended wilderness.

Existing Wilderness Areas - In considering the need for additional Wilderness Areas, it should be noted that two designated wilderness areas occur within the KIPZ. These are:

Idaho Panhandle NFs – Salmo-Priest Wilderness Area (12,000 acres)

Kootenai NF – Cabinet Mountains Wilderness Area (93,700 acres)

Wilderness Study Areas - There are two areas within the KIPZ that have been designated by Congress as Wilderness Study Areas. For the IPNFs, the Idaho-Arkansas Land Exchange Act of 1992 directed the forest to study approximately 4,500 acres in the Grandmother Mountain Area. The Montana Wilderness Study Act specified that the Ten Lakes area would be reviewed within a five-year period for suitability as wilderness. The analysis was accomplished and a final Report was sent to Congress in 1983. Pending a decision from Congress on the KNF recommendations for Ten Lakes, the 1987 Forest Plan designated a special management area (MA 9) for this area. This 34,200-acre area remains in that temporary status.

Which of the IRAs that have potential should be proposed for Wilderness?

The DEIS will include an analysis of several alternatives. Each alternative will include a recommendation of some or no additional Wilderness Areas. The recommendation will be based on the overall management theme or management approach that is reflected by the alternative.

Public comment will be receved on the DEIS. Final wilderness recommendations in the FEIS will be a reflection of national direction, Regional expectations, and public comment.

The proposed revised Forest Plans will review and consider wilderness recommendations made in the 1987 KNF and IPNFs Forest Plans. These are listed below, with the acreages from the original Forest Plans. As with IRAs, these acres may be different now due to newer mapping technology, land exchanges and other factors.

IPNFs 1987 Forest Plan Recommended Wilderness	Acres
Salmo-Priest (addition to existing wilderness)	17,600
Scotchman Peaks (IPNFs portion)	23,900
Selkirk Crest	26,700
Mallard-Larkins	78,500
Forest Total	**146,700**

KNF 1987 Forest Plan Recommended Wilderness	Acres
Scotchman Peak (KNF portion)	36,200
Cabinet Face East (addition to existing wilderness)	20,400
Cabinet Face West (addition to existing wilderness)	8,000
McKay (addition to existing wilderness)	6,700
Chippewa (addition to existing wilderness)	400
Ten Lakes Contiguous Area	6,800
Forest Total	**78,500**

On the KNF, eleven separate Wilderness Bills have been introduced to Congress, seven since the Forest Plan was signed, without a decision being made on any of the areas involved. Similar efforts covering the IPNFs have not resulted in a decision.

How should the IRAs that are recommended for wilderness be managed?

Areas that are recommended for wilderness will be managed according to forestwide management direction (forestwide standards and guidelines) as well as Management Areas (MA) direction. It is expected that the DEIS will contain an MA for recommended wilderness. The MA for recommended wilderness should address the concern that management actions do not allow activities that would preclude an area from being designated as a wilderness in the future.

How should the IRAs that are not recommended for wilderness by managed?

The 1987 Forest Plans provided direction on how the IRAs that were not proposed for wilderness should be managed. They were allocated to a variety of MAs. Some of these MAs had prescriptions that called for road construction while others did not. The intent in the Forest Plans was that a certain amount of timber would come from the IRAs that had timber harvest prescriptions.

This direction to build roads and harvest timber in certain IRAs has proven to be very controversial, and the amount of timber harvest and road construction that was projected in the Forest Plans has not occurred. Controversy continues to accompany most proposals to harvest timber, build roads, or otherwise develop IRAs.

The ROD for the Roadless Area Conservation Rule prohibited road construction, road reconstruction, and or timber cutting, sale or removal in IRAs except under certain circumstances. On December 12, 2002, the Ninth Circuit Court of Appeals reversed the ruling by the US District Court that had enjoined USDA from implementing the Roadless Area Conservation Rule. This on-going litigation and other future national developments may continue to make the Agency's management direction for these areas uncertain. Management direction for IRAs in the proposed revised Forest Plans will comply with the direction in affect at that time.

What are the implications of continuing under current management direction for IRAs?

Direction in the 1987 Forest Plans included guidance to manage some of the IRAs for resources that would preclude roadless management. Direction included proposed development in some of the IRAs for timber management. The projected amounts of timber harvest and road construction from these areas has not occurred. Continuing under 1987 Forest Plan direction would perpetuate this situation, and the desired goals and objectives as stated in the 1987 Forest Plans would not be met for those areas. This direction does not reflect the current national policy for the management of IRAs and needs to be revised.

The revised Forest Plans will evaluate each of the 91 IRAs on the KIPZ and recommend management options depending upon current national direction that continues to evolve and change. Currently, we are unable to implement the Roadless Area Conservation Rule because of remaining legal issues. The Forest Service has established interim guidance for the management of IRAs to ensure that these areas are protected until the current legal issues are resolved and national guidance is finalized. Until that time, we will continue to evaluate these roadless areas through our Forest Plan Revision Process.

Revision Topic - Access and Recreation

Need for Change

Access to NFS lands is one of the most controversial topics, both internally and externally, in forest management today. Because of the level of this controversy, it is appropriate to address Access and Travel Management as part of Forest Plan Revision. Public dissatisfaction with current direction and policies is apparent in both the media coverage that is devoted to it, and in the public meetings that are held on a regular basis across both forests. This dissatisfaction is evident on both sides of the controversy. That is, there are some groups that advocate that access to NFS lands is much too limited, both in where people can go and how they get there, and there are groups that advocate that there are not enough restrictions on where people can go and how they get there.

The 1987 Forest Plans do not provide adequate direction to address the changes in recreation demands and technology and shifts in management practices that have occurred over the last fifteen years. Forest Plan Revision provides the opportunity to address these changes. Some of the changes that have occurred are as follows:

- Increased user demand over the last fifteen years. Since the 1987 Forest Plans were developed, motorized and non-motorized modes of travel have increased and diversified. In the case of the IPNFs, communities like Spokane, Coeur d'Alene and Sandpoint have experienced significant population growth. For the KNF, areas like the Flathead Valley and Missoula areas have grown. This growth in population has resulted in an increase in the numbers and types of users of NFS lands. Roads that were originally constructed and used for timber harvest are now predominantly used for recreation purposes, and resource protection and restoration.
- Technological advancements in recreational equipment has resulted in forest users accessing areas that were not accessible fifteen years ago and pursuing recreational activities in ways that were not possible historically. Motorized vehicles, such as snowmobiles and ATVs, can access areas much further into the forest than they could historically.
- Changes in logging system technology and feasibility have advanced and the need for high-density road systems is no longer a critical factor for harvest activities. Changes in financial resources have limited our ability to adequately maintain the existing road systems on the two forests. The National Fire Plan (NFP) and a shift in fire management have changed how access is considered. Weed control and eradication has emerged in the last decade as a prominent factor to consider in terms of access on NFS lands.
- One of the more controversial changes has been the miles of roads that have been put into restricted status. In order to meet wildlife habitat needs, NFS roads have been put into restricted status at a faster rate and over a shorter period of time, than was estimated in the 1987 Forest Plans.
- The need for watershed restoration work and the means to meet those needs was not addressed in the 1987 Forest Plans. This has led to the method of re-contouring roads as a means of decommissioning.
- In January of 2001, a new Forest Roads Rule and Policy was issued which revised regulations concerning the management, use, and maintenance of the National Forest Transportation System. Forest Plan Revision provides the opportunity to incorporate this direction into the Forest Plans (USDA 2001b).

Based on these changed conditions there is a need to better integrate social needs and resource management directions with access management.

Laws and Regulations

The Multiple-Use Sustained-Yield Act (MUSYA) of 1960 provides the direction to NFS lands to provide access and recreation opportunities. The Act states, "The policy of Congress is that national forests are established and administered for outdoor recreation…"

The Wilderness Act of 1964 was passed to establish wilderness lands for the "… use and enjoyment of the American people…"

The National Forest Roads and Trails Act of 1964 declared that an adequate system of roads and trails be constructed and maintained to meet the increasing demand for recreation and other uses.

The Wild and Scenic Rivers Act of 1968 establishes three classes of river systems: wild, scenic, and recreation. The purpose of the act was to protect the river "… for the benefit and enjoyment of present and future generations."

The Federal Land Policy and Management Act (FLPMA) of 1976 declares that "…the public lands be managed in a manner that…will provide for outdoor recreation and human occupancy and use."

The National Forest Management Act (NFMA) of 1976 sets forth the requirements for Land and Resource Management Plans for the NFS. The 1982 regulations associated with NFMA (36 CFR 219.21) require the following related to recreation resource planning:

> To the degree consistent with needs and demands for all major resources, a broad spectrum of forest and rangeland related outdoor recreation opportunities shall be provided for in each alternative. Planning activities to achieve this shall be in accordance with national and regional direction and procedural requirements of paragraphs (a) through (g) in CFR 219.21.

Executive Order 11644 (and as amended by E.O. 11989 of 1977) (Use of Off-road Vehicles on the Public Lands) of 1972 establishes policy and procedure "…that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands."

Forest Service Strategic Plan

The USDA Forest Service Strategic Plan (Revision 2000) provides guidance for future agency actions. Goal 2 and Goal 4 in the Strategic Plan relate to access and recreation issues.

Goal 2 "Multiple Benefits to People" states: Provide a variety of uses, values, products and services for present and future generations by managing within the capability of sustainable ecosystems."

> *Objective 2.a states:* "Improve the capability of the Nation's forests and grasslands to provide diverse, high quality outdoor recreation opportunities. The measure of this objective is the trend in user satisfaction by use and geographic region."
>
> *Objective 2.b states*: "Improve the capability of wilderness and protected areas to sustain a desired range of benefits and values. The measure of this objective is the trend in user satisfaction by use and geographic region."

Goal 4 "Effective Public Service" states: Ensure the acquisition and use of an appropriate corporate infrastructure to enable the efficient delivery of a variety of uses."

> *Objective 4.b states:* "Improve the safety and economy of USDA Forest Service roads, trails, facilities, and operations and provide greater security for the public and employees. The measure of this objective is the trend in infrastructure, services, and operations meeting public service safety standards."

Objective 4.f, states: "Provide appropriate access to NFS lands and ensure nondiscrimination in the delivery of all USDA Forest Service programs. The measure of this objective is the trend in public and administrative access to NFS lands and USDA programs."

The Forest Plans and Monitoring and Evaluation

IPNFs Forest Plan

The IPNFs 2001 Monitoring and Evaluation (M&E) Report has the following information related to access and recreation:

- Forest Plan Monitoring: Other Topics of Interest – Ecosystem Restoration (USDA 2002c, p. 56)

  "There were 136.2 miles of road obliterated in FY 2001 as part of ecosystem restoration work, using a variety of funds. There were 1,210.7 miles of road obliteration on the IPNFs from FY 1991-2001. System roads are generally the ones that are inventoried, maintained and managed by the forest. The other roads are not."

  The IPNF's monitoring report contained limited information relative to recreation use and user conflicts. Monitoring item D-1 examined and tracked the potential impacts related to Off-highway vehicles. The manner in which this monitoring item was established makes it very difficult to determine whether or nor impacts are occurring as a result of off-highway vehicle use. Establishing new monitoring items that more definitively track the impacts associated with off-highway vehicle use is something the new plan will need to address.

- Forest Plan Monitoring Item B-5: Road Construction (USDA 1998b, p. 14)

  "The Forest Plan projected that 176 miles of new roads would be constructed each year and 97 miles would be reconstructed. …the projected amount of annual new road construction (176 miles) was much greater than the amount that actually occurred for every year from 1988-1998. For road reconstruction the amount projected (97 miles) was exceeded for 8 of the 11 years. Road reconstruction generally occurs on older roads and is necessary to bring them up to standards so they are drivable."

KNF Forest Plan

The following information related to access and recreation was provided in the KNF 2000 M&E and 1997 M&E reports (USDA 2001d, USDA 1998a):

- Emerging Issue: Monitoring Item H-2 (USDA 2001d, p. 53) – Roads and Associated Access Issues:

  "Road Maintenance: The inability to maintain existing roads to an acceptable standard continues to be a major concern both internally and with the public. There is a conflicting need to improve watershed conditions with the need to maintain public access.

  Road Closures: In general, road closures have become part of the public's concern over federal versus local control.

  Access: Public comments include concerns about access to the forest for a variety of reasons, including snowmobile or OHV use in designated and recommended Wilderness Areas. There is a conflicting need to provide backcountry winter access with the need to maintain habitat security for lynx and other species. The Forest Plan allows snowmobiling in the Ten Lakes Wilderness Study Area (WSA), however, opponents interpret it as authorization at the level of use at the time the Forest Plan was approved. Since 1987, use in the Ten Lakes WSA has increased significantly including non-typical use by llama and mountain bikers. There is also a conflicting need to provide access to private lands (ANILCA) with a need to maintain habitat security, especially for grizzly bear."

- Forest Plan Budget: Monitoring Item H-4 (USDA 2001d, p. 59)

  "Recreation: (total of developed and dispersed use, in recreation visitor days) – Compared to the 1987 Forest Plan, recreation budgets are lower and outputs are higher. Continuing difficulty in obtaining full funding on a national basis affects this program area. However, outputs are steadily increasing as more people volunteer and challenge grants help reduce this gap between planned and realized funding. The quality of the recreation experience could diminish if the current cooperation diminishes and the budget gap continues. The low reliability and accuracy of the dispersed recreation use data (for example, using traffic counts to calculate driving for pleasure and viewing values) may also be a contributing factor to the large overrun of outputs."

- Emerging Issues: Monitoring Item H-2 (USDA 1998a, p. 99)

  "Balancing Road Closures to Meet Forest Plan Standards While Providing Access to the National Forests for the Public: Recent planning efforts indicate that the Forest Plan open road density standard of .75 miles per square mile in Management Area (MA) 12 cannot be achieved in some areas without closing all the roads including main collector roads and loop roads, which have been traditionally used for decades. Projects which cannot meet the standard are either being winter logged, deferred, or a Forest Plan amendment (generally programmatic, meaning it is in effect for the life of the Forest Plan) is being proposed. In addition, some projects cannot be implemented without opening a closed road. When the road is opened, the open road density standards are not met. In these cases, the projects are modified, dropped, or project-specific amendment (which is only for that project) is proposed. Response to road closures has included an increasing number of signs and gates being vandalized or removed."

- Road Access Management Monitoring: Item L-1 (USDA 1998a, p. 106):

  "Background: Prior to the 1987 Forest Plan, about 27% of the inventoried NFS roads were in restricted status either yearlong or seasonally (Forest Plan FEIS, USDA 1987b, p. IV-51). The Forest Plan projected that in order to provide the issue resolution desired, about 57% of the roads would eventually need some form of restriction. This would be about double the amount of road restrictions in the 1987 Forest Plan. The assumption was that the number of new roads needed to harvest timber would increase significantly, and that they would all be restricted after the timber sales were completed -- the net result being a lot more road restriction but about the same level of original access for the public. The need for additional road restrictions was to protect dispersed recreation values, provide for wildlife security in big game winter and summer range, reduce road maintenance costs, and provide for grizzly bear recovery. Because of the significant increase in the amount of road restrictions needed (from 27% to 57%), it was assumed that it would take about 10 years to accomplish, about an 11% increase each year to reach the planned level.

  Evaluation: By 1997, enough roads had been restricted to meet the goal of having closures on approximately 57% of the KNF's roads. Table 1-25 shows the progression of closures through time. The closed roads have been both yearlong and seasonal closures. Although the percentage of road closures has been achieved as expected, the total amount of road access is less than expected. This is because road construction has been less than anticipated due to reductions in the timber sale program (see Monitoring Item E-1 for details). The road closures have been placed not only on new logging roads, but also on older roads, which were not anticipated for a significant level of closures in the Forest Plan. The reasons for closures include wildlife habitat security, to save maintenance costs, to decrease erosion, and improve hydrological conditions. Access has been identified as an emerging issue (Monitoring Item H-2). Response to closures on existing roads includes an increasing number of signs and gates being vandalized or removed."

Table 1-25: Forest Roads Access Restrictions

FY	Total Miles of Road	Total Miles of Restricted Access	% of Total Roads Restricted	Total Miles of Unrestricted Access	Difference in Miles of Unrestricted Access from FY 87
87	6,200	1,669	27%	4,530	0
88	6,972	3,195	45%	3,777	(753)
89	7,112	3,260	45%	3,852	(678)
90	7,052	3,041	43%	4,011	(519)
91	7,131	3,734	52%	3,399	(1,131)
92	7,149	3,784	53%	3,365	(1,165)
93	7,377	3,990	54%	3,387	(1,143)
94	7,350	4,062	55%	3,280	(1,242)
97	7,460	4,275	57%	3,185	(1,345)

Forest system roads only, that are restricted to motor vehicles both yearlong and seasonally.
Source: 1997 KNF Monitoring and Evaluation Report

Planning Questions for Access and Recreation

Planning questions have been developed to provide context to the access and recreation revision topic. These questions are followed by a description of the historic and current condition and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.

Planning Question - What are the types, quantities, and distribution of access that historically and currently exist and what are the trends?

Type: What is on the KIPZ to use and how can it be used? Presently there are three major types of concern: roads, trails, and general forest areas (i.e. any area off of a road or trail). Relative to how they can be used, the topic revolves around whether motorized or non-motorized modes of travel are permitted or restricted.

Quantity: How much of it is available to use? In relation to roads, trails, and general forest areas, whether a certain type of use is permitted or restricted and whether restrictions are yearlong or seasonal.

Distribution: Where on the forest is access available?

Historic Condition of Access

In the early 19th, century, Euro-American fur traders entered the Northwest via trails and river routes established by Native Americans. Modern railroads and highways follow many of the same routes. Traffic along these routes increased with use by missionaries, exploration and survey teams, miners, settlers, and other travelers. Railroads were built late in the 19th century and enabled mining and logging ventures to develop, providing opportunities for permanent settlement. The need and demand to improve and expand the existing trails to allow passage of wagons continued as people continued to migrate to the Northwest.

The settlement of the lower elevations and river valleys continued in the 20th century and the logging and mining industries expanded. The first influence of road building due to the logging industry was from horse drawn sleigh trails and temporary railroads. Horse drawn skid trails and sleigh trails were developed to transport logs to the rivers. Some of these trails evolved into roads.

The temporary railroads were located and built to acceptable railroad grades. The rails were removed after logging was completed in an area and some of the excavated grades were later utilized as roads.

By 1925, most of the highways and some of the county roads had been established. The transportation system consisted of these public roads and a network of private roads. Some private roads provided access to homesteads and homes. Other private roads were developed for logging on private or lumber company lands. Some homesteaders sold their land to lumber companies who, in turn, would harvest timber, then trade or transfer the land to the Forest Service. Many of the original logging roads developed during this early part of the century still remain on the landscape. During this time the Forest Service was developing an extensive trail system to access and manage National Forest lands. Many of these trail locations would evolve into roads.

The Roosevelt New Deal Policy and the establishment of the Civilian Conservation Corps supported the road construction activities of the 1930's. Many of the fire lookouts and roads to the lookouts were built during this time.

Wood demand during World War II contributed to the increase of logging activity and road building in the Northwest. Timber harvest and road construction continued to increase after the war to meet the home construction demands of a growing United States population. Road building started in earnest in the 1950's and continued through the 1980's. The majority of roads that now comprise the transportation system on the national forests were built or reconstructed during this time. Many miles of roads were built as cost-share roads with corporate landowners between 1960-1980.

Road building for timber harvest continued through the rest of the century, though at a much slower rate then before. Changes in logging methods, a moratorium directive on road building in roadless areas, land exchanges, and appropriations, have influenced how roads are managed and maintained in the last decade. Private road construction to access residential land has increased in the last 15 years and has resulted in an increase in requests for easements and right-of-ways across NFS lands.

Current Condition of Access

The first two columns in Summary of Roads Table 1-26 show how many miles of road were inventoried on the KNF and IPNFs in 1987 and what is currently in the inventories. This Table shows a 22% increase on the IPNFs and a 26% on KNF. It should be noted that this increase did not result entirely from new road construction. Over the last few years, a more thorough and accurate accounting of previously un-inventoried roads contributed to the current total miles. Columns 3 and 4 show the miles of road that are open yearlong on each forest. The last two columns display the miles of road on each forest that are currently seasonally restricted or restricted yearlong.

The IPNFs currently have approximately 69% of its roads in yearlong or seasonally restricted status. This is nine percent higher than the 50% to 60% as projected in the 1987 Forest Plan (USDA 1987c, p. II-23).

The KNF currently has approximately 63% of its the roads in yearlong or seasonally restricted status. This is six percent higher than the 57% projected in the 1987 Forest Plan (USDA 1987a, p. II-10).

Table 1-26: Summary of Roads by Travel Management Status

	Existing National Forest System Roads Under FS Jurisdiction (mi.)		Roads Open Yearlong (mi.)		Roads Seasonally Restricted (mi.)	Roads Restricted Yearlong (mi.)
	1987	Current	1987	Current	Current	Current
Idaho Panhandle	9,500	11,621	*	3,527	1,036	6,979
				29%	95%	60%
Kootenai	6,300	7,954	4,530	2,934	765	4,217
				37%	10%	53%

Source: USFS Infra database * = Information not available
Note: Approx 79 miles of road on the IPNFs have unassigned Travel Management Status
Approx. 38 miles of road on the KNF have unassigned Travel Management Status

The Summary of Trails Table 1-27 shows how many miles of trail were inventoried in 1987. Please note that the increase in total miles of trails on both the KNF and IPNFs from 1987 to today can be attributed to previously unmaintained and abandoned trails being put back into use, converting other constructed features to function as trails (roads, railroads, etc.) and some limited new construction to tie existing trails to new trailhead locations. The IPNFs shows an increase of 38% in miles of trail (restricted and not restricted to motorized use combined) from 1987. Of the current total of 2,728 miles of designated trails, 1,553 (57%) are available for motorized use.

The KNF shows an increase of 22% in miles of trail (restricted and not restricted to motorized use combined) from 1987. Of the current total of 1,587 miles of designated trails, 585 miles (37%) are available for motorized use.

There are some trails on both forests that, even though they do not have legal restrictions on motorized use, preclude motorized use due to the physical characteristics of the trail (too steep, too many physical barriers, etc).

The current trend for existing NFS roads and trails is to progress towards smaller systems that can be maintained within financial limitations and with acceptable environmental effects. Efforts to restore watershed conditions by reducing road caused impacts to water quality are being given high priority and decommissioning of roads is one method being used to achieve this goal. Wildlife habitat needs are being addressed with the implementation of restrictions on NFs roads.

Table 1-27: Summary of Trails

	Trails (mi.)	Trails Where Motorized Use is Restricted (mi.)		Trails Where Motorized Use is Not Restricted (mi.)		Designated Skiing Trails (mi.)	Roads Restricted Yearlong (mi.)
	1987[1]	1987	Current	1987	Current	Current[3]	Current[3]
Idaho Panhandle	9,500	*	1,175[2]	*	1,553[2]	73	1,244
Kootenai	6,300	*	1,002[4]	*	585[2]	109	166

Source: [1] KNF and IPNFs 1987 Forest Plans, [2] Meaningful Measures data, [3] R1 2001-2002 Summaries for Snowmobile and Ski Touring Trails, [4] Current 36 CFR 261.50 (a) (b) * = Information not available

Access Decisions

The site specific types, quantities, and distribution of access on the KNF and IPNFs is determined at the District level and depicted on maps and associated legal orders. It includes many facets, including mode of transportation, restrictions, signing, visitor information, monitoring, and enforcement. All users of the national forests, be they the general public, private land owners, corporate entities, or the agency itself, are impacted when decisions are made by the Districts regarding access.

The IPNFs 1987 Forest Plan gives direction for the development of District Road Management Plans, which would be used to establish policy for each individual road on the District. Currently, the South Zone and Central Zone of the IPNFs have 2002 Travel Maps and the North Zone has their latest scheduled for release in February of 2003.

The KNF 1987 Forest Plan gives no direction for Travel Planning other than, "The Forest Travel Planning process will be used to review, evaluate, and implement the goals and standards of the Management Areas, with regard to roads, trails, and motorized-vehicle use." Nowhere in the KNF Forest Plan is the Forest Travel Planning process described.

However, the Districts on the KNF have been doing Travel Planning in conjunction with project planning and following the Northern Region Guide for Access and Travel Management. The results of the decisions made through project planning are displayed on the individual Road Access Maps that are prepared by each district on a yearly basis.

Financial Considerations

One aspect of the amount of access that can reasonably be provided is the fiscal reality of being able to maintain the existing NFS Roads and Trails to appropriate standards. How to pay for these maintenance needs has been a topic of debate. At the core of this debate is the fundamental question of how much funding is needed and how much funding is available to meet those maintenance needs.

Different roads require different amounts of maintenance. Needs are determined based on the maintenance level that roads are assigned. Five different levels of maintenance are assigned to NFS roads:

> **Maintenance Level 1 – Basic custodial care** - Assigned to intermittent service roads during time they are closed to vehicular traffic.
> **Maintenance Level 2 – High clearance vehicles** - Assigned to roads operated for use by high clearance vehicles.
> **Maintenance Level 3 – Suitable for passenger cars** - Assigned to roads operated and maintained for travel by a prudent driver in a standard passenger car.
> **Maintenance Level 4 – Moderate degree of user comfort** - Assigned to roads that provide a moderate degree of user comfort at moderate travel speeds.
> **Maintenance Level 5 – High degree of user comfort** - Assigned to roads that provide a high degree of user comfort and convenience. (FSH 7709.58)

Over the years, as more roads were constructed on the national forests, there was a relative increase in the miles of roads that needed to be maintained and an increase in costs to construct and maintain them.

When timber harvest operations were peaking in the 1980's and early 1990's, a substantial amount of road maintenance was accomplished with the timber sale contracts. As timber harvest has declined, so has the amount of road maintenance accomplished through those contracts. As a result more and more road maintenance needs, both annual and deferred, are dependent on appropriated dollars.

Deferred maintenance is maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period. When allowed to accumulate

without limits or consideration of useful life, deferred maintenance leads to deterioration of performance, increased costs to repair, and decrease in asset value.

The amount of funding available through this appropriation process has not kept pace with the needs. This means that our annual and deferred maintenance work is not getting done and we are losing our capital investments in our roads systems. As deferred maintenance remains undone, it will cost more in the future to bring roads up to standards. As annual maintenance remains undone, there is a greater risk of increased costs in the future and for unacceptable resource impacts to occur.

In the last five years, an intensive field inventory of deferred and annual maintenance needs has been conducted and an estimate of costs to bring all of our roads up to their assigned maintenance levels has been completed. Table 1-28 displays the mileage of roads in the five different Objective Maintenance Levels and the estimated annual and deferred maintenance costs.

- For the IPNFs, the annual maintenance budget would need to be approximately $6.6 million dollars and the cost to bring all roads up to their assigned maintenance level is estimated at $520 million dollars.
- For the KNF, the annual maintenance budget would need to be approximately $28.8 million dollars and the cost to bring all roads up to their assigned maintenance level is estimated at $515 million dollars.

The significant cost to bring all roads up to their assigned maintenance level is part of the reason why access on the KNF and IPNFs needs to be addressed in the revision process. Funding is not sufficient to adequately maintain all of the existing roads on the KNF and IPNFs.

Table 1-28: Summary of Road Miles and Estimated Maintenance Costs by Objective Maintenance Levels

FOREST	Total Miles	Estimated Annual Maintenance Costs	Estimated Deferred Maintenance Costs
Idaho Panhandle			
Objective Maint. Level 5	99	$206,415	$99,000
Objective Maint. Level 4	258	$894,228	$1,291,290
Objective Maint. Level 3	1,965	$3,075,225	$44,275,380
Objective Maint. Level 2	2,452	$1,500,624	$96,008,060
Objective Maint. Level 1	6,819	$988,755	$378,454,500
TOTAL	**11,593**	**$6,665,247**	**$520,128,230**
Kootenai			
Objective Maint. Level 5	98	$576,534	$76,815,242
Objective Maint. Level 4	121	$3,477,540	$91,161,521
Objective Maint. Level 3	1,526	$7,347,690	$190,441,748
Objective Maint. Level 2	1,759	$3,410,701	$34,173,852
Objective Maint. Level 1	4,419	$14,043,582	$122,927,742
TOTAL	**7,923**	**$28,856,047**	**$515,520,105**

Source: USFS Infra database

Note: Approx. 28 miles of road on the IPNFs has unassigned Objective. Maint. Levels.
Approx. 31 miles of road on the KNF has unassigned Objective. Maint. Levels

Trends

Assessments conducted under the Resource Planning Act (RPA) are one source of information on the status and trends of renewable resources in the U.S. that help to set the stage for strategic planning. The following represents some of the findings and expectations from the 2000 RPA Assessment related to recreation and access (USDA 2000c, pp. 64-69):

- Demands for recreation and tourism and non-wood forest products will evolve and increase over time as the population increases and becomes more diverse.
- Given the projected increases in population and income, employment in the recreation and tourism sectors will likely increase over time.
- In part due to projected rising incomes, the number of participants in most recreation activities is projected to increase faster than the rates of growth in population with associated increases in employment opportunities.
- Increased rates of participation are expected in most recreation activities.
- There is a trend toward closing more private land to outdoor recreation in the future in all regions. The area of private land with free and open access to individuals whom the landowner does not know declined from 25 percent to 15 percent between the mid-1980's and mid-1990's.

Planning Question – What are the types, quantities, and distribution of recreation opportunities that historically and currently exist and what are the trends?

Types – What is it that we have to use and how can it be used? The Recreation Opportunity Spectrum (ROS) is used for classifying settings that range from rural to primitive. These classes are further distinguished as to whether they are for non-motorized use or motorized use. A distinction is made between Developed Recreation and Dispersed Recreation.

Quantities – How much of it is available to use? In relation to recreation, this refers to how many acres are identified in the various ROS classes.

Distribution – Where on the forest are the opportunities available?

Historic and Current Conditions of Recreation

Recreation is an important use of the forests. Since the 1980's, both motorized and non-motorized recreation use of the roads, trails, and general forest areas has increased dramatically. ATV and snowmobile travel are the two modes of travel that increased the most. Foot, horse, and mountain bike travel, and to a lesser degree, cross-country and backcountry skiing and river use have also increased.

With the increased use, recreationists are vying for quality recreation space, which may sometimes overlap or be the same area. This can manifest itself in conflicts (outside of wilderness) between recreationists that use non-motorized and those that use motorized modes of travel. Recreation conflicts occur when a user participating in one recreation activity reduces the recreation experience of another user. In isolated cases, there are conflicts between non-motorized recreationist's travel modes, (e.g. horseback riders, hikers, and mountain bikers).

Developed Recreation – generally, the developed recreation sites have kept pace with changing demands and expectations are, for the most part, met. Redesign and reconstruction has been ongoing with respects to changes for accommodating RV's, improving accessibility, and services such as potable water and

sanitation. Some expansions have also occurred to increase capacity. Reservation systems, Host programs, and Fee Demo programs have helped to keep pace with the changing times.

Dispersed recreation – there is difficulty in meeting expectations for dispersed recreation, and planning and management tools have not adapted to change. More people, doing more things, over larger and more diverse areas challenge KIPZ with the breadth and depth of their individual views of appropriate uses for National Forest lands.

As roads, trails, and areas are restricted or closed to motorized travel, use shifts from these areas and results in increases on those roads, trails, and areas that remain open to motorized use where a similar experience can be found. A sense of loss of freedom is resulting from the reduction of traditionally open roads available for motorized access. For example: the goal to ensure grizzly bear security has required the Forests to adapt to evolving direction from the USFWS, and the resulting increases in access restrictions have generated a strong reaction from forest users who are dissatisfied with the reduction in open roads available for their use.

Non-motorized user concerns revolve around conflicts with motorized users. These concerns include noise, the smell of exhaust, dust, safety issues, wildlife displacement and harassment, and resource damage (Final Off-Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment, January 2001c). Some people feel that motorized use is not appropriate in Wilderness Study Areas (WSAs) and Forest Plan Recommended Wilderness. Some people also feel that if there is motorized travel in these areas, it should be keep at the 1977 use levels. This sentiment was upheld in a recent US District Court decision and judgment that the Forest Service violated PublicLaw 95-150. (The Forest Service is currently appealing this court decision.)

Some hunters feel that motorized use negatively affects their hunting experience. The results of a survey published by the Montana Fish, Wildlife, and Parks (1998) shows that improper vehicle/road hunting is one of the top behavioral problems of the1997 hunting season. Nearly half of the respondents mentioned this problem. Respondents were also concerned about the widespread use of ATV's and their negative impact on the sport of hunting.

A study of Montana residents' trail use by the Institute for Tourism and Recreation Research was conducted in 1994 (Harris and McCool 1994). The study was designed to be representative of the entire Montana population and included participants who engaged in walking for pleasure/day hiking, driving vehicles off-road for recreation, backpacking, and using ATVs and motorcycles off-road. 45% of the respondents agreed that conflicts on trails are relatively minor, while 15% disagreed. Less then 2% of the respondents reported conflict with others during their most recent trail experiences. In all cases, motorized users were more likely to say their activity was compatible with day hiking and backpacking. Backpackers and day hikers found other non-motorized activities to be most compatible with their activities.

In August 2000 at the "OHVs and Hunting Summit" sponsored by the Montana Fish, Wildlife, and Parks, Montana Trail Vehicle Riders Association (MTVRA), and the National Off-Highway Vehicle Conservation Council (NOVAC), 12 instances were identified where hunters utilizing OHVs caused conflict and damage by inappropriate use of OHVs. These ranged from diminishing the traditional hunting experience to trespassing into areas and trails closed to motorized vehicles (Bell 2000).

In 1987, the KNF and IPNFs did not quantify how many acres on the forests were available in the different Recreation Opportunity Spectrum (ROS) classes. Instead, the various MAs were identified as being appropriate for one or more of the ROS classes. The current ROS inventories are not up-to-date and do not reflect the significant changes in access that have occurred across the KNF and IPNFs. In addition, the ROS system has not been used to address the seasonality of recreation uses, and there is little direction in the Forest Plans for spatial (geographic) distribution of recreation/travel experiences.

Following is a summary of the settings and social situations we will be addressing in Forest Plan Revision:

Setting

Settings provide the "stage" for the six recreation opportunity classes of: Primitive, Semi-primitive non-motorized, Semi-primitive motorized, Roaded natural, Rural, and Urban. The relative availability of the different recreation opportunity settings can be determined by utilizing the review and evaluation framework of the ROS. As stated above, the current inventories are out-of-date and do not portray what is currently available on the KNF and IPNFs. The inventory will be updated for the DEIS.

Table 1-29 summarizes the acres by special management designations on both forests. These specific management designations contribute to the availability of recreation opportunities.

Table 1-29. Summary of Acres by Special Management Designation by Forest*

	Wilderness	Forest Plan Recommended Wilderness	Wilderness Study Area	Inventoried Roadless	Special Interest Areas
Idaho Panhandle	11,900	146,700	4,500	823,000**	8,200
Kootenai	93,700	104,100	34,800	639,100	12,300
TOTAL	105,600	250,800	39,300	1,462,100	20,500

Source: KNF and IPNFs 1987 Forest Plans, Current GIS Databases

* A particular area may be designated in more than one of the above categories (an area included in Recommended Wilderness may also be inlcuded in the forest's Inventoried Roadless Areas, for example).

**As noted in Table 1-23, this acreage does not include approximately 13,000 acres of the St. Joe Wild and Scenic River Corridor where it flows through IRAs. With that area included, the acres for IPNFs IRAs would be 825,300.

Wilderness Areas – Since no motorized or mechanical use is allowed in classified wilderness, these areas are available for non-motorized and non-mechanical travel by foot, stock, skis, and snowshoes in the Primitive and Semi-Primitive Non-motorized ROS classes.

Recommended Wilderness Areas – These areas were identified in the Forest Plans as candidates for designated Wilderness status. They provide opportunities in the Primitive and Semi-primitive ROS classes.

Wilderness Study Area (WSAs) – Forest Plans also identified areas that were congressionally designated for evaluation for wilderness classification.

- On the IPNFs, the Grandmother Mountain Area was identified in the Idaho-Arkansas Land Exchange Act of 1992 as a Wilderness Study Area and the study was competed (by the BLM).
- On the KNF, the Ten Lakes Recommended Wilderness Area was included in the Montana Wilderness Study Area Act.

Both of these studies were completed and submitted to Congress for consideration but no decisions were made. They would provide opportunities in the Primitive and Semi-primitive ROS classes.

Inventoried Roadless Areas (IRAs)– The 1987 Forest Plan Roadless Evaluations proposed that the full range of recreation opportunities be available in areas with this designation. Some of these roadless areas were recommended for wilderness in the Forest Plans. Even though the potential development of lands identified as roadless was prescribed in Forest Plans, many people did not agree and the controversy has continued over the past decade. In November 2000, the Forest Service Roadless Area Conservation FEIS (USDA 2000e) was issued. The preferred alternative in this document prohibits or restricts road

construction or reconstruction and timber harvest in Inventoried Roadless Areas. It also creates procedures to identify, evaluate, and conserve or enhance the characteristics of IRAs through the land management planning process. IRAs provide opportunities in the Primitive and Semi-primitive ROS classes. For more information on IRAs, see the section on IRAs Revision Topic in this chapter.

Special Interest Areas (SIAs)– Special Interest Areas possess unique, unusual, or important flora, fauna, geological, recreational, cultural, or historic attributes. The Forest Plans specifically identified the areas that were known at that time. These designated areas were planned to provide a range of recreation opportunities from Semi-primitive non-motorized to Roaded natural. Since the Forest Plans, a number of newly recognized sites have been identified and added. Additional areas have been identified as candidates to be considered and need to be addressed in the Revision process.

These five special management designations combined provide 40% of the acres available for recreational use on the KNF and IPNFs. Two percent of this 40% is wilderness and is automatically non-motorized. WSAs and Forest Plan Recommended Wilderness make up six percent of the total and are mostly non-motorized in the summer, with some winter-motorized use allowed. If these areas (Study Areas and Recommended Areas) were to become wilderness, they too would be non-motorized, making a total of eight percent non-motorized.

Inventoried roadless areas comprise 31 % (based on a combined total of 4,720,000 acres) of NFS lands on the KIPZ. These lands are key to the future supply of both motorized and non-motorized recreation opportunities as some of them could be managed either way.

The Forest Plan Revision will need to resolve the management of areas currently designated as WSAs or Forest Plan Recommended Wilderness. Revision will also need to address the management of IRAs within the direction of the Roadless Rule.

Social Situation

On the KNF and IPNFs, 40% of the area supplying recreation opportunities is in Wilderness, WSAs, Recommended Wilderness, Special Interest Areas, or Inventoried Roadless Areas. For the remaining 60% of the lands outside of these areas, people have differing views on what kind and amount of travel should be allowed.

Motorized travel (from all sources, i.e. commercial, management, recreation) has contributed to the spread of noxious weeds, vegetative damage, soil erosion, disturbance of wildlife and wildlife habitat, and damage to cultural sites. Non-motorized travel also contributes to these problems.

There has been an increase of unplanned, user created trails. Motorized, wheeled cross-country travel is causing resource and social problems. These resource and social problems were identified in the Northern Region Off-Highway Vehicle (OHV) EIS and Proposed Plan Amendment (which applies to the KNF but not the IPNFs). A Record of Decision (ROD) was issued for this EIS in January 2001 (OHV ROD and Plan Amendment for Montana, North Dakota and Portions of South Dakota, p.4). This decision is intended to help manage future impacts from increasing use of OHVs on areas that are currently available to motorized, wheeled cross-country travel. Specifically, the amendment, as it pertains to the KNF, prohibits motorized, wheeled cross-country travel with some exceptions such as for emergency purposes. It also directs the KNF to prioritize travel management areas and begin site-specific travel planning on high priority areas within two years and moderate priority areas within five years and should result in the designations of roads and trails for their appropriate uses. OHV use on the IPNFs is not addressed in any of the current Forest management documents. This aspect of travel management will need to be addressed in the Forest Plan Revision process.

Technological improvements in recreational equipment, especially with snowmobiles which can traverse almost any kind of terrain, is allowing visitors to travel to previously inaccessible areas. The increase in travel in these areas has the potential to create both resource and social problems where none existed

before. At the time of forest planning in the 1980's, many of these areas were thought to have negligible use or were inaccessible.

An increase of motorized use in WSAs, Forest Plan Recommended Wilderness, and other planning areas where motorized use is permitted by 1987 Forest Plan direction has some groups concerned with protecting the wilderness character of these areas. This increase of motorized use has resulted in a lawsuit pertaining to Montana WSAs and also is a point of controversy regarding the mode of travel allowed in other areas.

There is a desire by non-motorized recreationists wanting more quiet trails and areas of solitude in areas where motorized use is presently permitted by Forest Plan direction. The areas where quiet and solitude are desired are often located in IRAs.

Except for the Coeur d'Alene River Ranger District, there is a lack of formal designated motorized motorcycle, ATV and 4X4 trail systems, geographically distributed across the KIPZ, where people know they can go and have a variety of motorized opportunities. These are areas that would be publicized, are signed, have trailhead facilities, and have maps and information brochures available.

Motorized travel, both summer and winter, is increasing in the backcountry (semi-primitive areas). IRAs, which are mostly in a Semi-Primitive Recreation Opportunity Spectrum (ROS) setting, are important to the future supply of both motorized and non-motorized travel as they may be managed either way.

Use of ATVs during fall hunting season has increased and has created problems between those hunters who hike and those who use motorized machines to hunt and access areas. The noise created by motorized use is disturbing to some people's hunting experience and is perceived to disturb game.

Use of snowmobiles is disturbing to some skiers seeking a solitude type of experience in backcountry (semi-primitive) areas. The disturbance is noise, fumes, and the presence of tracks. The amount of snowmobile travel in WSAs in Montana and Idaho is being questioned by at least one group.

Winter recreation use is occurring in grizzly bear, lynx and caribou habitat. The effect of winter travel, both motorized and non-motorized, on the viability of these species on the KNF and IPNFs is unknown. The FEIS Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones was published in March 2002 but no decision has been issued. In addition, a Canada Lynx conservation strategy exists and is likely to have some effect on winter travel.

Problems with water travel are isolated incidents on a few lakes, but the problem is growing. The concern is mostly with the use of personal watercraft and powerboats disturbing other users.

The KNF and IPNFs Forest Plans offer minimal direction to resolve developing problems. Generally, the 1987 Forest Plans are broad and Standards and Guidelines for access and travel management do not address today's use and issues.

In addition, the KNF and IPNFs Forest Plans are not consistent in their approach to access and travel management. The plans are not linked to provide consistency of recreation user benefits across the two forests. The linkage between forest-wide goals, objectives, standards and guidelines, management area direction, desired ROS categories, and subsequent site/area specific access and travel planning in individual plans is weak or nonexistent. Following are specific examples of Forest Plans weaknesses:

- Where motorized use is permitted in WSAs, recommended wilderness areas, and further planning areas, guidelines for levels of access and travel related to maintaining wilderness character are not clear or are nonexistent.
- Monitoring requirements, especially for WSAs, recommended wilderness areas, and further planning areas, are basically nonexistent.
- Winter use, both motorized and non-motorized, is minimally addressed.

Trends

Assessments conducted under the RPA are one source of information on the status and trends of renewable resources in the US that help to set the stage for strategic planning. The following represents some of the findings and expectations from the 2000 RPA Assessment related to recreation and access (USDA 2000c, pp. 64-69):

- The most popular recreation activities through the years have been those that are relatively low cost, can be pursued without a great deal of physical exertion, and do not require special equipment or skills. (Cordell, 1999 p.221).
- Recreation activities with the greatest potential for future demand growth on private land include camping, hunting and other activities that require large open areas. The growth in the numbers of participants in hunting and fishing is projected to be less than the growth in population.
- Across all levels of government, there appears to be a nationwide trend toward increasing the number, quality, and scope of developed land-based recreation activities.
- Recreational use of existing designated wilderness areas is projected to increase between 0.5 and 1.0 percent per year for the next 50 years. (Cordell, 1999 p.374).
- The five fastest growing recreation activities through 2050, as mentioned by number of participants, are projected to be: cross-country skiing (95% growth), downhill skiing (93% growth), visiting historic places (76% growth), sightseeing (71% growth), and biking (70% growth) (Cordell, 1999 p.349)

A trend common to Montana and Idaho is the aging of the population (Campbell 1996). The percentage of persons under 20 years of age will decrease and the percentage of people over 65 will increase over the next 30 years. For example, in Montana:

- Percentage of population under 20 years old is projected to decrease from 30.2% in 1995 to 24.3% in 2025.
- Percentage of population 65 and over is expected to increase from 13.1% in 1995 to 24.5% in 2025.

Since 1991, out of state visitation to Montana has increased 28% (Travel Montana, 2002). This growth trend is expected to remain in the foreseeable future with some fluctuations due to economy or weather conditions.

Another important trend is the increasing popularity of public lands for recreation. A recent comprehensive report on recreation by Cordell (1999) indicates demand in the Rocky Mountain West (which includes Montana and Idaho) for the following activities will increase substantially by the year 2050: non-consumptive wildlife activities (94%), sightseeing opportunities (85%), fishing (59%), off-road driving (54%), hiking opportunities (44%), primitive camping (29%), backpacking opportunities (24%), and hunting (22%).

Truck registration increased during this time from 268,466 to 304,696 vehicles. From 1990 to 1998, annual sales of new ATV's, motocross bikes, and enduros in Montana increased from 2,700 to 4,539. This is an annual growth rate of 6.7%. This increasing trend in truck, ATV and motorcycles is expected to continue as the population continues to increase (USDA 2001c).

What are the implications of continuing under current management direction for Access and Recreation?

Roads will continue to be managed to meet legal requirements. Watershed restoration projects will result in continuing decommissioning of roads. Wildlife security will be attained through the use of road restrictions. Under-maintained roads will continue to deteriorate and long-term economic and resource risks will increase. Many site-specific amendments may be required to deal with travel management. User expectations will not be met and dissatisfaction will continue to escalate.

Expectations for dispersed recreation users are not likely to be met. In some dispersed areas across the KIPZ (primarily river corridors and lands adjacent to lakes), overuse and resource degradation continues to occur due to the lack of proper facilities and transportation systems. Various groups will continue to advocate their interests and controversy is likely to continue. Unplanned and unmanaged uses will evolve and generate new areas of unresolved conflict.

Developed recreation sites are likely to meet the expectations of most users. Legally required health and safety issues will be met. Minimal funding for recreation site maintenance continues to be a problem and will intensify if the Fee Demonstration Program disappears.

Chapter 2 – Planning Process, Public Participation, Collaboration and Next Steps

Planning Process and Public Participation

One of the goals throughout the entire KIPZ Forest Plan Revision process is to encourage participation and collaboration by providing numerous opportunities for public involvement. In order to better understand where, when and how the public is involved throughout the process, following is a brief discussion about the planning process as guided by NEPA regulations and the current 1982 planning regulations:

Notice of Intent

A Notice of Intent (NOI) formally initiates the National Environmental Policy Act (NEPA) process. The NOI for the KIPZ to begin Forest Plan Revision was published in the Federal Register on April 30, 2002. The NOI for these two forests described the proposed action, preliminary revision topics and issues with the 1987 Forest Plans; dates for filing the EIS; information concerning public participation; names and addresses of the agency officials who can provide additional information; and some possible preliminary proposed actions/strategies.

Scoping Comment Period

Public participation is encouraged throughout the entire revision process but is especially important and helpful at several points along the way. The first formal and important opportunity for the public to comment is during the scoping period, which began on April 30, 2002 and ends on March 21, 2003 (40 CFR 1501.7). During this time, the public is to review and provide their comments on the Preliminary Revision Topics/Issues that were identified in the NOI, are on the website www.fs.fed.us/kipz, were in our May 2002, issue of "KIPZ News", and were also presented at the open houses held in June 2002. The AMS and this document are tools to provide more information to the public about the revision topics in order to provide comments during the scoping comment period.

The question that has been posed to the public, during the scoping period, through a wide variety of media is:

> **Are the Revision Topics/Issues that were identified accurate or is there an issue that is absent; and/or direction that needs to be changed from our 1987 Forest Plans, and should be addressed during Revision?**

Content Analysis:

At the end of the scoping period, all of the comments received will be read and all issues will be identified and analyzed. This process is called content analysis, which is designed to extract concerns from each letter, track similar concerns from different responses, identify specific issues and provide a mailing list of respondents. As used during the scoping phase of a project, Content Analysis strives to identify all relevant issues, not just those represented by the majority of respondents. Breadth and depth of the comments are as important as quantity in this process.

Although this analysis attempts to capture the full range of public issues and concerns, it should be used with caution. The respondents are self-selected; therefore their comments do not necessarily represent the sentiments of the entire population. However, the analysis does attempt to provide fair representation of the wide range of views submitted. It's important to remember that the comment process and content analysis is **not** a vote count. The results from the content analysis will be a summary of public issues and concerns, by issue or topic area, that will be considered in the development of the DEIS and proposed revised Forest Plans.

Analysis of Management Situation (AMS)

During the scoping period, the KIPZ Team has developed the AMS and this document (AMS Technical Report), which is a collection and analysis of data describing monitoring and evaluation findings; historic and current condition and trends; and applicable information from current science and assessments. The information in the AMS, comments from the public and continued public participation (additional meetings and work groups) will be used to further define significant issues, identify desired future conditions for geographic areas, and design preliminary alternatives for the DEIS.

Draft Environmental Impact Statement (DEIS) and Proposed Forest Plans

The 1982 Planning Regulations require the preparation of an EIS when a plan is revised. The EIS must be conducted in accordance with the requirements of the NEPA, and display information used to make the decision on which alternative to adopt as the revised Forest Plan.

Therefore, the next planning step will be to develop:

- One DEIS for both forests
- A proposed revised Forest Plan for each forest.

The KIPZ team will continue to develop and refine the possible proposed actions that were listed in the NOI. These actions are used to develop alternatives. Specific proposed actions are desirable to focus the analysis and public comment on the relevant topics and issues.

One of the alternatives that will be developed in detail in the DEIS, called the No Action Alternative, will look at the implications of continuing to follow current direction in the 1987 Forest Plans. Several other alternatives will be developed and analyzed with public input. The range of alternatives presented in the DEIS will address issues identified during scoping. It may also include other alternatives considered during collaborative planning. One of the alternatives will be selected as the Forest Service's "preferred alternative" when the draft documents are made available for public comment.

DEIS Comment Period

The second formal and important opportunity for the public to comment is after the DEIS is completed. There will be a 90-day public comment period on the DEIS, which will begin from the date the EPA publishes the notice of availability in the Federal Register. To assist the Forest Service in identifying and considering issues and concerns on the proposed action, comments on the DEIS should be as specific as possible. It is also helpful if comments refer to specific pages or chapters of the draft statement. Comments may also address the adequacy of the DEIS or the merits of the alternatives formulated and discussed in the statement. Reviewers may wish to refer to the Council on Environmental Quality Regulations (CEQ) for implementing the procedural provisions of the NEPA at 40 CFR 1503.3 in addressing these points.

Final Environmental Impact Statement (FEIS) and Proposed Revised Forest Plans

After the comment period on the DEIS ends, one of the important first steps during the preparation of the FEIS is reading, analyzing, considering, and then responding to all of the public comments by the Forest Service. These frequently lead to a number of changes that are made between the DEIS and FEIS.

Our current projection is that work on the FEIS will occur from fall 2004 to fall 2005. Documents that we will produce during this phase include:

- One FEIS for both forests
- A Record of Decision (ROD) for each forest
- A revised Forest Plan for each forest

The current estimated completion date for the FEIS is winter 2005. The public will be notified when the FEIS is completed and available.

Record of Decision (ROD)

The ROD documents the decision and the rationale for the decision.

The responsible official will consider the comments, responses, and environmental consequences discussed in the FEIS; and applicable laws, regulations, and policies in making decisions regarding these revised Forest Plans. The responsible official will document the discussions and reasons for the decisions in the RODs for the revised Forest Plans. The decisions will be subject to appeal in accordance with 36 CFR 217 and the public will be notified upon completion of the FEIS.

If the revision outlines recommendations to Congress, the recommendations will be forwarded to the Forest Service Washington Office for their review.

Public Participation

Since the 1987 Forest Plans, there have been significant changes in public perception, social conditions, and how the public wants to be involved. A Social Science Assessment, which is one of our public involvement tools for determining how the public wants to be involved and what they value most, has been completed on each of the KIPZ forests (Impact Assessment, Inc. 1995 and Parker et al., 2002). In addition, included in this section is what we've heard so far from the public on the issues they feel need to be addressed during Forest Plans revision.

The majority of the people interviewed for the Social Science Assessments and those who attended public meetings and/or submitted comment letters indicated that they want to be more involved in actions that affect the NFS lands and their use of this land. They also feel that traditional public involvement, for example informational briefing meetings, has not been effective nor efficient. One of their suggested solutions is for the Forest Service to focus on ways to bring people with differing views, together to discuss an issue.

To organize the public involvement activities for the various stages of the KIPZ planning process, a Communication and Collaboration Plan was created. The purpose of this plan is to ensure that goals of public activities are clear, responsibilities are identified, contacts are known and timelines are set. The KIPZ has set up a Communication Team, comprised of public affairs specialists, planners, and line and staff officers from the two forests, to guide and support this process. This Communication and Collaboration Plan will be continuously updated to reflect changes in activities or personnel. The intent is to identify our public involvement responsibilities and implement them in a timely, effective manner.

Public Involvement Activities to Date

Several news releases have been published throughout the 3-state area and the first KIPZ News was distributed in May 2002. The KIPZ News was sent to approximately 2,500 people from existing forest mailing lists and was also posted on the KIPZ website. It summarized the preliminary revision topics, advertised the June 2002 open houses, and listed contact information.

During June of 2002, open houses were held on both forests to provide information and get feedback on the preliminary Revision Topics. Thirteen meetings were held in the following locations with over 250 people in attendance:

- **Idaho**: Bonners Ferry, Coeur d'Alene, Moscow, Priest Lake, Priest River, Sandpoint, Silverton, and St. Maries
- **Montana**: Eureka, Libby, Noxon, and Troy
- **Washington**: Spokane

These open houses provided an excellent opportunity to speak individually and collectively with interested members of the public. Many of these meetings had press coverage and newspaper articles in local papers. The concerns raised by the people who attended these meetings are summarized and available on the KIPZ website, and are presented both by community and by issue.

In addition to the open houses, the website, and the newsletter; the Forest Supervisors, District Rangers and individual KIPZ planning team members have been attending a variety of meetings with local interest groups, environmental organizations and other state and federal agencies, and have been talking with members of the public about the plan revision.

Summary of Public Comments to Date

The scoping comment period has been in effect since April 30, 2002. Following are some of the comments, by Revision Topic, heard to date. Please note that these comments have not been through the process of content analysis but are a compilation of what was heard at the open houses and a few additional issues read to date from the comment letters. These comments reflect what people think about public lands, the Forest Service, personal use of national forests and land management activities. One of the steps to content analysis is to determine which comments are applicable to the KIPZ revision process and which are outside of the control of the Forest Service. Other screens will be applied to the comments as well during the content analysis. Public comments not only influence the content of the draft planning documents, they help the Forest Service understand what issues are important and how to better communicate.

Public comments on the KIPZ revision and on other areas of concern include:

Vegetation:

- More management of the ecosystems to make and keep them healthy but don't lock us out – utilize our tools – fire and logging/thinning.
- Forests need to be thinned "properly" even where they've been logged. What's the hold-up on doing hands-on land management?
  - Need to get forests healthy and ready to log in future years.
  - Is tree planting occurring?
  - How are you going to replace the early seral tree species?
  - The health of the forest is the most important thing.
- What standards apply to restoration? To who's standards or what standards will the forests be restored?
- The Forest Service has no clue of historic conditions.
- If we don't address forest health issues now and clean up the forests, we "will" have real water quality issues because of catastrophic fires and other reasons.
- Difficulty in understanding the potassium deficiency issue and what does it mean to health of the vegetation.
- Weed program has been allowed to take backseat to timber management.
  - Noxious weeds have sky rocketed on federal lands.
  - Study needs to be done on damage to the resource by ATV's vs. horses. Which has more impact as far as weed spread?
  - Cumulative effects need to be addressed.

Wildlife:

- How will the Grizzly Bear amendment be affected by Forest Plans revision? How will the amendment affect decisions in the new Forest Plans?
- How will the Endangered Species Act affect decisions in the new Forest Plans?
- How are we going to address wildlife corridors in Forest Plans revision? How does the Grizzly, Lynx etc. amendments affect these wildlife corridors?

Wildlife Continued:

- How many bears can this forest support?
- Concerned about the effect of science on grizzly and lynx and it's affect on decision in the new Forest Plans.
- Impacts on wildlife.
  - Concentration of people causes impacts to wildlife (ie. the number of recreationists at some high mountain lakes in the Selkirk Mtns. driving away the caribou.)
- Regarding the Endangered Species Act, are the programs coordinated so that there isn't conflict between species for certain chunks of land?
- Who determines the best science that is available and what will we use in revision?
- ICBEMP – What's our plan to use the science from this project? Are we going to use the science from this Plan in its entirety?
- Concerns about using CRB science.
- Scientific studies are ambiguous (Grizzly bear, Lynx and UCRB)
- Skeptical of the new science – What is new science?

Watershed, Fisheries and Amphibians:

- How will the Endangered Species Act be dealt with in Forest Plans revision and how will it affect the decisions?
- What is Pacfish and how does it affect Forest Plans revision?
- What qualifies a stream to be impaired and who sets the standard?
- What causes a stream to be impaired?

Social and Economic:

- Concerned about local economy and our affect/contribution to it. If the community is diversifying their economy.
  - What's the Forest Service contribution to economic sustainability?
  - What reference will you be starting from for economic sustainability– scratch or ICEBMP?
  - When mills close, this affects the whole community (schools, roads and tax base etc.)
- Put the forests' Social Assessments on the website.
- Update the Kootenai's Social Assessment to reflect current attitudes, conditions etc.
- What are the substantial resource and social changes that have occurred since 1987?
- More small sales in the Forest Plans. More helicopter sales to get wood to the mills.
- Emphasize and provide more details on Social and Economics in the new Forest Plans.
- Need cumulative effects identified for all impacts to the economy.

Timber Production:

- What was the biggest obstacle to us achieving the direction that we came out with in the 1987 Forest Planss (ie. Timber production, ASQ)?
- Why haven't we ever met the ASQ target and the other targets in the 1987 Forest Plans?
- Guarantee for more timber outputs for stability of mills.
  - Plum Creek mill in Libby could close, creating a loss of 330 jobs.
  - Look hard at timber production predictions in new Forest Planss and explain what you mean by the numbers.
- Offer more small sales in the Forest Plan. More helicopter sales to get wood to the mills.
- Look at timber heritage in Forest Plans revision.
- Utilize 10 – 14" trees. What's the market for these small trees?
- Timber production helps reduce fire buildup/hazard. Why not use it as a tool for land management and it will also help sustain the economy of the communities?
- Where do the funds go that come from timber sales?
- We are getting more and more timber from Canada.

Fire Risk:

- When are we going to address the Wildlands Fire Policy?
- Reducing fire hazard/build-up needs to be addressed in Forest Plans revision.
- Fire risk is increasing so why can't we just estimate outputs related to reducing fire risk?
- Strong concern of the need to focus on fire because of the fuel build-up in the national forests.
- Use fire as a tool for land management, prescribed fire so we don't have these catastrophic fires.

Access and Recreation:

- People want more non-motorized opportunities.
  - Want more places to go for solitude.
  - Damage to the resource by motorized activities vs. horses.
  - Damage to the resource by motorized activities.
  - There are "some areas" where non-motorized and motorized are compatible (ie. snowmobile/cross country skiing). Doesn't have to be a conflict.
- People want more motorized opportunities.
  - Older Americans concern about their need to drive because they can't walk as far for personal use, huckleberry picking etc.
  - What about seasonal access?
  - Concern about roads and access for firewood cutting, recreation, hunting etc.
  - Study needs to be done on damage to the resource by ATV's vs. horses and which has more impact as far as weed spread.
  - Review opening closed roads to provide for disabled etc. access.
- Loss of access due to road obliteration.
  - Where's the scientific data to support obliteration of roads?
  - Decommissioning roads are used to keep people out. Where does the decision come from?
- Impacts on wildlife.
  - Concentration of people causes impacts to wildlife (ie. The number of recreationists at some high mountain lakes in the Selkirk Mtns. driving away the caribou.)
- Who makes the decision on what roads/trail are closed? What is the process?
- What percentage of the people that are using the forest is based on increases in the population base and what percentage is based on technology?
  - Is technology the only reason for more impact, broader spread, and more intense impact on the land?
- Strong concern of closing off access to National Forest System lands. For example, by Forest Service definition, first a road that is open for road vehicles is closed and changed to a motorized trail excluding road vehicles and then sometimes it's closed to ATV's and open to motorcycles. Forest Service needs to explain why.

Visual affects need to be addressed.

Need for airstrip designations – recreational air needs need to be addressed.

Inventoried Roadless Areas:

How are IRAs going to be addressed in the new Forest Plans?

- What happened to the IRA's proposed for wilderness in the 1987 Forest Plans and how are we going to address in the new Forest Plans?
- What's the next step with IRAs that were analyzed and not recommended for wilderness?

What's the definition of an IRA and what's the difference from unroaded areas and roadless areas?

Explain the different management options available in IRAs, unroaded etc.

Planning and Decision Making Process:

- How are decisions made and how do local interests weigh against national interests? Which takes priority in decision-making and how are they used in the decision-making process? This is not a voting process.
  - Not listening to locals and people are frustrated. Appearance of listening to out-of-staters, scientists, environmentalists etc.
  - Look more at local level for management strategies. Forest Plan will be made locally and decision-maker is local.
- What kinds of decisions are going to be made in Forest Plans revision?
  - When will site-specific decision be made and will there be public involvement?
  - Who makes the decision on what roads/trails are closed? What is the process?
- How do people and communities fit into the equation in the revision effort? Explain the balance of ecological and social and economic and which carries more weight.
  - Do resource issues/management take precedence over social issues/desires on any given area?
  - How does the Endangered Species Act affect decisions in Forest Plans revision?
- It's difficult to provide comments when I have site-specific issues/concerns when Forest Plans revision is broad in scope. How do I make comments about my special area during Forest Plans revision?
- More management of the ecosystems to make and keep them healthy but don't lock us out – utilize our tools – fire and logging/thinning.
  - Forests need to be thinned "properly" even where they've been logged. What's the hold-up on doing hands-on land management?
  - Need to get forests healthy and ready to log in future years.
  - Is tree planting occurring?
  - How are you going to replace the early seral tree species?
  - The health of the forest is the most important thing.
- What standards apply to restoration? To who's standards or what standards will the forests be restored?
- The Forest Service has no clue of historic conditions.
- If we don't address forest health issues now and clean up the forests, we "will" have real water quality issues because of catastrophic fires and other reasons.
- Difficulty in understanding the potassium deficiency issue and what does it mean to health of the vegetation.
- Need information about the Forest Plans process.
  - Frustration with the process.
  - Amendments to the Forest Plan seem to happen every year.
- Need to explain programmatic nature of Forest Plans vs. site-specific documents.
  - It's difficult to provide comments when I have site-specific issues/concerns when Forest Plans revision is broad in scope. How do I make comments about my special area during Forest Plans revision?
- What happens if Forest Plans revision is appealed and/or litigated?
- If the funding goes away for Forest Plans revision, what happens to the schedule?
- Which Planning Rule are you going to use, 1982 or the 2002?
- What happens if the new Planning Rule becomes final during our revision process? How does the decision-maker decide which planning regulations to use?
- What will happen with the changes that happen between now and 2005? How will they affect the new revised Forest Planss?
- Too much planning – planning to plan.
- Analysis paralysis.
  - Appeal process is so ambiguous. Concern about people who appeal forest management issues from out-of-state and don't know the area.
  - Why can anyone with their viewpoint, not necessarily substantiated, be able to stop or dictate how a project is done or appeal it, when the specialists are in the Forest Service? Let the professionals do their jobs.

Planning and Decision Making Process Continued:

- Misuse and abuse of the appeals/litigation system – needs to revise the appeals process.
- The Chief said 40% of the Forest Service budget is being spent on planning and conflicting mandates. Analysis process is based on judges' decision.
- Accountability for our actions is a critical component to a new Forest Plan.
- How effective will the Forest Plans revision team be in covering such a big area, two forests?
- Appropriations not conducive to achieving all objectives, ie. aquatic restoration, weeds, etc.
- What happens if the 15 years expires and the revision is not completed?

Implementation and Monitoring:

- How does the FS ensure that we can implement and monitor the Forest Plan, financially? Will the Forest Service prioritize how and what we implement and use this based on the funding given by Congress?

Land Exchanges:

- How are we going to address in Forest Plans revision?

Laws and Policy:

- Which laws take precedence over other laws? The Forest Service has so many agencies/people telling them what to do and who or what law takes precedence?
- Does the Forest Service really have to comply with all the laws mandated by US Fish and Wildlife Service?
- Some of the laws that the Forest Service has to follow go against public viewpoints.
- Need to enforce the laws and regulations.

Public Involvement and Public Comment:

- Forest Service needs to establish focus groups throughout the Forest Plans revision process.
  - We need to find common ground. What can we agree on?
  - Set up study groups for specific areas ie. Tobacco Valley area.
  - Suggestion and agreement amongst the audience for the Forest Service to bring divergent groups together to work together and come up with solutions to issues. Encourages the Forest Service to proactively make this happen.
- How do we use public comment? Did you really listen to us? Look for a lot of ways to share with the public what the Forest Service heard.
- Look for other ways to engage and reach the public. How does the FS get more people involved and interested?
  - Different times for meetings and different methods of informing the public.
- Concern about the past public involvement with last Forest Plan and the result was not favorable. What will be different with this plan revision?
  - Does the Forest Service really want the public involved?
  - Want to see real public involvement.
- It's difficult to provide comments when I have site-specific issues/concerns when Forest Plans revision is broad in scope. How do I make comments about my special area during Forest Plans revision?
- The Forest Service needs to share comments from both sides of the issue.
- How much weight does public comment have in decisions in the Forest Plan?
- Show how all resources integrate with one another and affect one another.
- Did you have a meeting in Missoula because there is a lot of people from there that recreate on the IPNFs?
- When is the best time for special interest groups to provide comment and suggest an alternative?

The information in the above list of public comments is also available on the KIPZ website presented in two ways: 1) what was heard in each community and, 2) what was heard collectively on each issue. This information is valuable in showing which issues are important in which communities and will be valuable

in identifying management options in the proposed revised Forest Plans that are responsive to local concerns, where possible.

Tribal Consultation

It is the responsibility of the Forest Service to recognize and honor the government-to-government relationship that exists between the United States government and tribal governments. The objective is to work effectively with the tribes in ways that they feel are meaningful government-to-government relations. All of the tribes that are within or adjacent to the KIPZ have been contacted by the appropriate Forest Supervisor regarding the Forest Plan Revision effort.

The KIPZ planning effort could potentially involve seven tribal governments. The following tribal groups requested a presentation and meetings were held by KIPZ planning team members and the Forest Supervisors: Coeur d'Alene Indian Nation, Kootenai Tribe of Idaho, Kalispell Indian Community of the Kalispell Reservation, and the Confederated Salish and Kootenai Tribe. The following tribes have been contacted, but they have not requested a meeting or presentation to discuss the KIPZ Forest Plan Revision process: Nez Perce Tribe of Idaho and the Spokane Tribe of the Spokane Reservation. The Confederated Tribe of the Colville Reservation was also contacted and there has been no expressed interest in consulting on the KIPZ Forest Plan Revision process.

The objectives of the initial meetings with these tribal groups was three fold: (1) to discuss how we can accomplish meaningful government-to-government relationships as defined by the tribes, (2) identify appropriate contact people, and (3) begin discussing and identifying issues important to the tribes. These discussions will continue throughout the Forest Plan Revision process and at any time requested by a tribal group.

Collaboration Activities

The success of any project depends heavily on the agencies ability to create an atmosphere for effective collaboration and to honestly listen, be open to what the public has to say and to allow true participation. Currently, a collaboration strategy is being developed and will be one of the many public involvement tools that we will use to inform and engage people in the Forest Plan Revision effort. We view collaborative planning not as consensual decision-making, but rather a shared understanding and learning process. We recognize we cannot eliminate the controversy inherent in some public land issues. However, collaboration promotes our ability to better understand each other and appreciate the choices and trade-offs that must be made. Collaboration also promotes learning from people who contribute new and creative ideas we may not have considered otherwise.

Public notice of dates, times, and locations for any upcoming meetings will be provided in local newspapers, posted on the KIPZ website http://www.fs.fed.us/kipz, and notices/newsletters to those on our email and hard mail Forest Plan Revision mailing lists.

Next Steps

The following is a list of ongoing and immediately upcoming public involvement activities, or activities involving public comment:

- **Availability of the AMS and the AMS Technical Report -** These two documents are posted on the KIPZ website http://www.fs.fed.us/kipz. They will also be distributed to tribal governments, elected officials, Forest Service offices, and libraries.
- **Close of the scoping comment period** - Content analysis of public comments received through scoping will be done and used in the formulation of the DEIS and proposed revised Forest Plans.
- **Collaboration Activities -** The next round of Collaboration activities and/or meetings will be posted on our website, in our next newsletter and local newspapers as soon as they are finalized.

Sources of Information

Website (www.fs.fed.us/kipz) – The KIPZ website is continuously being updated and kept current. Currently, open house public comments, the newsletter, news releases, this document and the AMS Technical Report, and other information are posted on the site. Content analysis results, an additional newsletter, and other information are expected to be posted in the next few months. For the most current information, the public should view our website.

Contact Information - If someone requires information via regular mail, they need to request to be on our mailing list by sending a note to:

USDA Forest Service

ATTN: KIPZ Revision Team

1101 U.S. Hwy. 2 West

Libby, MT 59923

or an email to r1_kipz_revision@fs.fed.us.

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Chapter Four - Glossary and Acronyms

Active Management - Management approach in which humans actively manipulate ecosystems through timber harvesting and thinning to improve forest health and to reduce fire hazard.

Activity area - a land area affected by a management activity to which soil quality standards are applied. Activity areas must be feasible to monitor and include harvest units within timber sale areas, prescribed burn areas, grazing areas or pastures within range allotments, riparian areas, recreational areas, and alpine areas.

Appropriate Management Response – Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

Aquatic Biota are living things dependent on water. In this document, the term refers to fish and amphibians.

Aquatic sustainability - The inherent capability or existing potential for a watershed system to provide water quality, water bodies (streams, lakes, wetlands, ponds, etc.), riparian environs (wetlands, flood plains, stream banks, lake shores, and other lands including terrestrial lands proximal to water bodies that can directly influence the water), and the biologic organisms that live in or are dependent on the water that are necessary to support the beneficial uses of the water.

Belt Super-group - comprised of a series of metasedimentary, geologic formations, including the Prichard, Burke, Revett, St. Regis, Upper Wallace, Lower Wallace, Striped Peak, Libby, Spokane, Helena, Empire, Snowslip, Shepard, Mount Shields, Bonner and McNamara.

Best Management Practices (BMPs) - A practice or usually a combination of practices that are determined by a State or a designated planning agency to be the most effective and practicable means (including technological, economic, and institutional considerations) of controlling point and nonpoint source pollutants at levels compatible with environmental quality goals.

Biological diversity (biodiversity) - The variety and abundance of species, their genetic composition, their communities, and the ecosystems and landscapes of which they are a part. As used in this document, biodiversity refers to native biological diversity; therefore, increases in species diversity resulting from the introduction of nonnative species would not constitute an increase in diodiversity.

Collaboration – as used in this context means to work together in a coopraitve relationship with Native American Tribes, agencies and the public in order to accomplish a desired goal.

Composition – The component tree, shrib, grass and forb classes in a stand or community.

Connectivity - The arrangements of habitats that allows organisms and ecological processes to move across the landscape; patches of similar habitats are either close together or linked by corridors of approved vegetation. The opposite of fragmentation.

Critical foliar nutrient levels - minimum concentration of a nutrient needed by a tree in order to function efficiently.

Current climatic period: The period of time since establishment of the modern major vegetation types, which typically encompasses the late Holocene Epoch (includes the present), and also including likely climatic conditions within the planning period. The current climatic period is typically centuries to millennia in length, a period of time that is long enough to encompass the variability that species and ecosystems have experienced. This period is considered to be prior to the 1880 and 1910 fire events and to approximately 2500 years ago.

Desired Future Condition - A portrayal of the land or resource conditions that are expected to result if goals and objectives are fully achieved.

Developed Recreation - Outdoor recreation requiring significant capital investment in facilities to handle a concentration of visitors on a relatively small area. Examples are ski areas, resorts, and campgrounds (OHV EIS)

Dispersed Recreation – Outdoor recreation in which visitors are diffused over relatively large areas. Where facilities or developments are provided, they are more for access and protection of the environment than for the comfort or convenience of the people. (OHV EIS)

Disturbance - Any relatively discrete event, either natural or human-induced, that causes a change in the existing condition of an ecological system.

Ecological integrity: Defined as the capability of supporting and maintaining a balanced, integrated, and adaptive community of organisms having species composition, diversity, and functional organization comparable to that of natural habitats of the region (Karr and Dudley 1981).

Ecological Process - The actions or events that link organisms and their environment, such as predation, mutualism, successional development, nutrient cycling, Carbon sequestration, primary productivity, and decay.

Ecosystem - An ecosystem is an interacting system of living organisms and their environment.

Ecosystem Diversity – The variety of ecological structures, communities, and processes across spatial scales such as regions, subregions, landscapes, and localities. Ecosystem diversity arises from variation in abiotic and biotic components and ecological processes over space and time.

Ecosystem management: This is a management practice and philosophy aimed at selecting, maintaining, and/or enhancing the ecological integrity of an ecosystem in order to ensure continued ecosystem health while providing resources, products, or non-consumptive values for humans. An integral part of ecosystem management is the maintenance of ecologically significant structure and processes within the ecosystem. The actions taken reflect the management goals and range from protection from human influence through to an increasing intensity of intervention to serve human needs.

Ecosystem Sustainability - The ability to maintain diversity, productivity, resilience to stress, health, and yields of desired values, resource uses, products, or services over time in an ecosystem while maintaining its integrity.

Environmental Impact Statement (EIS) – EISs were authorized by the National Environmental Policy Act (NEPA) of 1969. Prepared with public participation, they assist decision makers by providing information, analysis and an array of action alternatives, allowing managers to see the probable effects of decisions on the environment. Generally, EISs are written for large-scale actions or geographical areas.

Endangered Species - a plant or animal species listed under the Endangered Species Act that is danger of extinction throughout all or a significant portion of its range

Environmental Assessment (EA) - EAs were authorized by the National Environmental Policy Act (NEPA) of 1969. They are concise, analytical documents prepared with public aparticipation that determine if an Environmental Impact Statement (EIS) is needed for a project or action. If an EA determines as EIS is not needed, the EA becomes the document allowing agency compliance with NEPA requirements.

Expected Weather Conditions - Those weather conditions indicated as common, likely, or highly probable based on current and expected trends and their comparison to historical weather records. These are the most probable weather conditions for this location and time. These conditions are used in making fire behavior forecasts for different scenarios (one necessary scenario involves fire behavior prediction under expected weather conditions.

Fire Exclusion - The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

Fire Management Area (FMA) - A sub-geographic area within an FMU that represents a predefined ultimate acceptable management area for a fire managed for resource benefits. This predefined area can constitute a Maximum Manageable Area (MMA) and is useful for those units having light fuel types conducive to very rapid fire spread rates. Predefinition of these areas removes the timelag in defining an MMA after ignition and permits preplanning of the fire area; identification of threats to life, property, resources, and boundaries; and identification of initial actions.

Fire Management Plan (FMP) - A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved land use plan. This plan is supplemented by operational procedures such as preparedness, prcplanned dispatch, burn plans, and prevention. The fire implementation schedule that documents the fire management program in the approved forest plan alternative.

Fire Management Unit (FMU) - Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc, that set it apart from management characteristics of an adjacent unit, FMU's are delineated in FMP's. These units may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

Fire Regime - The fire pattern across the landscape, characterized by occurrence interval and relative intensity. Fire regimes result from a unique combination of climate and vegetation. Fire regimes exist on a continuum from short-interval, low-intensity (stand maintenance) fires to long-interval, high-intensity (stand replacement) fires.

Fire Severity - The effects of fire on resources displayed in terms of benefit or loss.

Fire Suppression - The practice of controlling forest and rangeland fires in a safe, economical, and exspedient fashion while meeting the natural resource objectives outlined in each forest's or grassland's land management plan.

Fire use - the combination of wildland fire use and prescribed fire application to meet resource objectives.

Fire-Adapted Ecosystem - An arrangement of populations that have made long-term genetic changes in response to the presence of fire in the environment.

Forest Health - The perceived condition of a forest derived from concerns about such factors as age, structure, composition, function, vigor, presence of unusual levels of insects or disease, and resilience to disturbance. Individual and cultural viewpoints, land management objectives, spatial and temporal scales, the relative health of the stands that make up the forest, and the appearance of the forest at a point which influences the perception and interpretation of forest health.

Forest Plan Direction - Allocation of areas to management prescriptions that consist of goals, objectives, standards and guidelines.

Forest Roads - As defined in Title 23, Section 101 of the United States Code (23 U.S.C. 101), any road wholly or partly within, or adjacent to, and serving the National Forest System and which is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources. (FSM 7705)

Fuel Management - The practice of evaluating, planning, and executing the treatment of wildland fuel to control flammability and reduce the resistance to control through mechanical, chemical, biological, or manual means, or by wildland fire, in support of land management objectives.

Function – Includes energy flows of materials across and within the landscape and how one ecosystem influences another. Function also relates to energy processes such as fire, hydrological processes (including floods), and matter and energy exchange throughout the food chain.

Functioning-At Risk (FAR) - Watersheds that are ``**functioning at risk**'' continue to have good physical, hydrologic and water quality integrity; however, present or ongoing adverse disturbances are likely to compromise that integrity if the present adverse disturbances are not modified or corrected. At Risk watersheds will have at least moderate physical, hydrologic, and water quality integrity even though they may have been substantially compromised by adverse disturbances.

Goal - A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad, general terms and is timeless in that is has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed.

Guideline - Preferable or advisable course of action.

Historic range of variability (HRV) - The variation in spatial, structural, compositional, and temporal characteristics of ecosystem elements as affected by minor climatic fluctuations and disturbances within the current climatic period. This range is measured during a reference period prior to intensive resource use and management. The range of historic variability is used as a baseline for comparison with current conditions to assess the degree of past change

IDT - Interdisciplinary Team. A team representing several disciplines to ensure coordinating planning of the various resources.

Integrity – The capacity to support and maintain a balanced, integrated, and adaptive biological system having the full range of elements and processes expected in a regions's natural habitat.

Inventoried Roadless Areas – Undeveloped areas typically exceeding 5,000 acres that met the minimum criteria for wilderness consideration under the wilderness Act and that were inventoried during the Forest Service's Roadless Area Review and evaluation (RARE II) process, subsequent assessments, or forest planning. Those areas identified in a set of inventoried roadless area maps, contained in Forest Service Roadless Area Conservation, Final Environmental Impact Statement, Volume 2, dated November, 2000, which are held at the National Headquarters of the Forest Service, or any update, correction, or revision of those maps."

Landscape - An area composed of interacting, and interconnected patterns of habitats (ecosystems) that are repeated because of thc geology, land form, soil, climate, biota, and human influences throughout, the areas. Landscape structure is formed by patches, connections, and the matrix. Landscape f'unction is based on disturbance events, successional development of landscape structure, and flows of' energy and nutrients through the structure of the landscape. A landscape is composed of watcrsheds and smaller ccosystems. It is the building block of biotic provinces and regions.

Management Area - An area with similar management objectives and a common management description.

Management Direction - A statement of multiplc-usc and other goals and objectives, the associated management prescriptions, and standards and guidelincs for attaining them. Attainment Report

Management Prescription - Management practices and intensity (frequency and duration) selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives.

Monitoring and Evaluation (of forest plan implementation) - Determine how well the objectives have been met and how closely management standards and guidelines have been applied. Can lead to recommendations for changes in management direction, amendments, or revisions to forest plans.

National Environmental Policy Act (NEPA) - is the basic national law for protection of the environment, passed by Congress in 1969. It sets policy and procedures for environmental protection, and authorizes Environmental Impact Statements and Environmental Assessments to be used as analytical tools to help managers make decisions.

National Forest System Road - A classified forest road under the jurisdiction of the Forest Service. The term "National Forest System roads" is synonymous with the term "forest development roads" as used in 23 U.S.C. 205. (FSM 7705)

Natural Ignition - A wildland fire ignited by a natural event such as lightning.

Nonnative invasive species - plant species that are introduced into an area in which they did not evolve, and in which they ususally have few or no natural enemies to limit their reproduction and spread. These species can cause environmental harm by significantly changing the ecosystem composition, structure, or processes, and can cause economic harm or harm to human health.

Not Properly Functioning (NPF) - Watersheds that are ``**not properly functioning**'' are operating and adjusting beyond that which can be considered to be in dynamic equilibrium; or the physical, hydrologic, or water quality integrity has been so compromised that restoration efforts may be futile without extraordinary funding and very long recovery time periods. Watershed systems that are Not PFC are essentially not capable of fully supporting beneficial uses without significant intervention and or extremely long recovery periods. They may contain aquatic resources that are seriously degraded or are not likely to sustain themselves over time

Noxious weeds - plant species designated as nopxious weeds by the Secretary of Agriculture or by the responsible State official. These species are generally aggressive, difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or disease, and are nonnative, new, or uncommon to the United States.

Objective - A concise, time-specific statement of measurable, planned results that respond to preestablished goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals.

Off-Highway Vehicles or Off-Road Vehicles - Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain; except that such term excludes (A) any registered motorboat, (B) any military, fire, emergency, or law enforcement vehicle when used for emergency purposed, and (C) any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license, or contract.

Old-growth forest - Old single story forest – single canopy layer consisting of large or old trees. Understory trees are often absent, orpresent in randomly spaced patches. It generally consists of widely spaced, shade – intolerant species, such as ponderosa pine and western larch, and high frequency fire regimes. Old multi-story forest – a forest stand with moderate to high canopy closure – a multi-leveled and multi-species canopy dominated by large overstory trees; high incidence of large trees, some with broken tops and other indications of old and decaying wood; numerous large snags; and heavy accumulations of wood, including large logs on the ground.

Open house - a variation of a public meeting that provides a more informal, one-on-one environment to disseminate information on an issue or process.

Planned Ignition - A wildland fire ignited by management actions to meet specific objectives.

Planning Area - The area of the National Forest System covered by a forest plan.

Proposed Species – Any species that is proposed by theFish and Wildlife Service or the National Marine Fisheries Service to be listed as threatened or endangered under the Endangered Species Act.

Prescribed Fire - Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition. This term replaces management ignited prescribed fire.

Prescribed Fire Plan - A plan required for each fire application ignited by managers. It must be prepared by qualified personnel and approved by the appropriate agency administrator prior to implementation. Each plan will follow specific agency direction and must include critical elements described in agency manuals. Formats for plan development vary among agencies although content is the same.

Prescription - A set of measurable criteria that guides the selection of appropriate management strategies and actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social or legal considerations.

Properly Function Condition (PFC) - Watersheds in ``**properly functioning condition**'' are essentially in good condition in terms of physical, hydrologic, and water quality characteristics and function. PFC watersheds have generally high integrity in terms of those same characteristics and processes. The streams are in dynamic equilibrium with their watersheds (i.e. they adjust appropriately to natural fluctuations of stream flow and sediment loading), and the watershed systems are fully functional, operating within their potential status. The systems are adjusting to disturbances within their apparent natural ranges of variability; and they are or can be expected to respond to disturbances with a trend toward a good condition within a reasonable time period.

Public Involvement - The use of appropriate procedures to inform the public, obtain early and continuing public participation, and consider the views of interested parties in planning and decision-making.

Public Issue - A subject or question of widespread public interest rclating to management of the National Forest System.

RARE II Roadless area (Roadless Area Review and Evaluation) - Roadless areas of NF System lands that were inventoried by the Forest Service in 1979.

Recreational Opportunities - The combination of recreation settings, activities and experiences provided by the forest.

Rehabilitation - The activities necessary to repair damage or disturnbance caused by wildland fires or the fire suppression activity.

Restricted Road - A National Forest Road or segment, which is restricted from a certain type of use of all uses during certain seasons of the year or yearlong. The use being restricted and the time period must be specified. The closure is legal when the Forest Supervisor has issued an Order and posted that Order in accordance with 36 CFR 261.

Riparian sustainability - A subset of Watershed Sustainability in this context. *Biotic sustainability* can be described generically as the ability to meet the needs of current generations without compromising the ability to meet the needs of future generations.

Risk - The probability of the occurrence of a hazard and/or the consequences of that hazard. (Hazards arc undesirable events.)

Road - A motor vehicle travel way over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary (36 CFR 212.1).
a. Classified Roads. Roads wholly or partially within or adjacent to National Forest System lands that are determined to be needed for long-term motor vehicle access, including State roads, county roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service (36 CFR 212.1).
*b. Temporary Road*s. Roads authorized by contract, permit, lease, other written authorization, or emergency operation, not intended to be a part of the forest transportation system and not necessary for long-term resource management (36 CFR 212.1).
c. Unclassified Roads. Roads on National Forest System lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travel ways, and off-road vehicle tracks that have not been designated and managed as a trail; and those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization.

Road analysis - an integrated ecological, social, and economic science-based approach to transportation planning that addresses existing and future road management options.

Road construction - activities that result in the addition of road miles to the forest transportation system.

Road Decommissioning - Activities that result in the stabilization and restoration
of unneeded roads to a more natural state

Road Maintenance - The ongoing upkeep of a road necessary to retain or restore
the road to the approved road management objective

Salvage - an intermediate cutting made to remove trees that are dead or in imminent danger of being killed by injurious agents.

Scoping - activities in the early stages of preparation of an environmental analysis to assess public opinion, receive comments and suggestions, and determine issues during the environmental analysis process.

Sense of place - the aesthetic, nostalgic, or spiritual effects of physical locations on humans based on personal, use-oriented or attached-oriented relationships between individuals and those locations. The meaning, values, and feelings that people associate with physical locations because of their experiences there.

Sensitive species - those plant and animal species in which a population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or by significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Short Interval Fire-Adapted Ecosystem - Ecosystems experiencing low intensity surface fires with a frequent fire return interval. Examples include long-needle pine and fire-adapted ecosystems such as Ponderosa pine.

Socially important species - Wildlife species that the public desires to encounter when using the National Forests. Management levels of these species may be outside of the historic range based on public interest. Examples include: Big game, upland birds, waterfowl, and "watchable" wildlife. Threatened and Endangered species may also be socially important, but they are covered under the species-at-risk section.

Standard - Limitations on management activities that must be complied with.

Structure – The horizontal and vertical physical elements of forests and grasslands and the spatial interrelationships of ecoystems.

Suitability - The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

Suppression - A management action intended to extinguish a fire or alter its direction of spread.

Sustainable - The ability to maintain a desired ecological condition or flow of bencfits over time.

Sustainability – Satisfying present needs without compromising the ability of future generations to meet their needs.

Thinning - (a) The cutting down and/or removing of trees from a forest to lessen the chance of a ground fire becoming a crown fire; a method of preparing an area so that a prescribed fire can be more easily controlled. Thinning influences the available amount of fuel and fuel management, and it can indirectly affect fuel moisture content and surface wind speeds. (b) A culture treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or recover potential mortality.

Threatened species - any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range and which the appropriate Secretary has designated as a threatened species.

Threshold - A place or point of beginning, the intcnsity below which a physical stimulus cannot be perceived and produces no response.

Total Maimum Daily Load (TMDL) - a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

Values at Risk - To rate according to a relative estimate of worth when exposed to a chance of loss or damage.

Viability - the ability of a population of a plant or animal species to persist for some specified time into the future. Viable populations are populations that are regarded as having the estimated numbers and distribution of reproductive individuals to ensure that its continued existence is well distributed in a given area.

Watershed sustainability - Described as a "properly functioning" system in terms of slope stability, erosion, the delivery and fate of sediment and other pollutants, runoff and stream flows, and riparian and channel stability and conditions. Watershed systems in "properly functioning condition" are identified by streams in dynamic equilibrium with their watersheds and water quality that can fully support beneficial uses that are inherent to the watershed.

Wilderness – a designated area defined in the Wilderness Act of 1964 in the following way: A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which – (a) generally appears to have been affected primarily by the forces of nature, with the imprints of man's work substantially unnoticed; (b) has outstanding opportunities for solitusde or a primitive and unconfined type of recreation; (c) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (d) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Wildland - Any area under fire management jurisdiction of a land management agency**.**

Wildland Fire - Any nonstructure fire, other then prescribed fire that occurs in the wildland. This term encompasses fires previously called *both* wildfires and prescribed natural fires.

Wildland Fire Implementation Plan (WFIP) - A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a Wildland fire being managed for resource benefits. A full WFIP consists of three stages. Different levels of completion may occur for differing management strategies (i.e., fires managed for resource benefits will have two-three stages of the WFIP completed while some fires that receive a suppression response may only have a portion of Stage I completed).

Wildland Fire Management Program - The full range of activities and functions necessary for planning, preparedness, emergency suppression operations, and emergency rehabilitation of wildland fires, and prescribed fire operations, including nonactivity fuels management to reduce risks to public safety and to restore and sustain ecosystem health.

Wildland Fire Suppression - An appropriate management response to wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. All wildland fire suppression activities provide for firefighter and public safety as the highest consideration, but minimize loss of resource values, economic expenditures, and/or the use of critical firefighting resources.

Wildland Fire Use - The management of naturally ignited wildland fires to accomplish specific prestated resource management objectives in predefined geographic areas outlined in FMP's. Operational management is described in the WFIP. Wildland fire use is not to be confused with fire use, which is a broader term encompassing more than just wildland fires.

Wildland-urban interface - the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Because of their location, these structures are extremely vulnerable to fire should an ignition occur in the surrounding area.

Acronyms

AMS	Analysis of the Management Situation
ARU	Aquatic Response Unit
ASQ	Allowable Sale Quantity
ATV	All Terrain Vehicle
BLM	Bureau of Land Management
BMP	Best Management Practices
CFR	Code of Federal Regulations
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAR	Functioning-At Risk
FEIS	Final Environmental Impact Statement
FIA	Forest Inventory and Analysis
FMA	Fire Management Area
FMP	Fire Management Plan
FMU	Fire Management Unit
FSH	Forest Service Handbook
FSM	Forest Service Manual
FVS	Forest vegetation simulation
GA	Geographic Area
GIS	Geographic Information System
HRV	Historic Range of Variability
HTGs	Habitat Type Groups
HUC	Hydrologic Unit Code
ICBEMP	Interior Columbia Basin Ecosystem Management Project
IDT	Interdisciplinary Team
INFS	Inland Native Fish Strategy
INFISH	preferred variant of INFS, above
IPNFs	Idaho Panhandle National Forests
IRA	Inventoried Roadless Area
KIPZ	Kootenai Idaho Panhandle Plan Revision Zone
KNF	Kootenai National Forest
LRMP	Land and Resource Management Plan
LTSY	Long-Term Sustained Yield
M&E	Monitoring and Evaluation
MA	Management Area
MIS	Management Indicator Species
MMA	Maximum Manageable Area
MMBF	Million Board Feet
MUSYA	Multiple Use Sustained Yield Act
NEPA	National Environmental Policy Act
NF	National Forest
NFS	National Forest System (includes national forests and grasslands)
NFMA	National Forest Management Act
NFMAS	National Fire Management Analysis System
NFP	National Fire Plan
NOI	Notice of Intent
NPF	Not Properly Functioning
NRA	National Recreation Area
NSA	National Scenic Area
NWA	National Wilderness Area
NWPS	National Wilderness Preservation System
NWSR	National Wild and Scenic Rivers
OHV	Off-highway vehicle
PCPI	Per Capita Personal Income
PFC	Properly Functioning Condition
PILT	Payments in Lieu of Taxes
RAPs	Roads Analysis Process
RARE	Roadless Area Review and Evaluation
RHCA	Riparian Habitat Conseervation Area
RMO	Riparian Management Objective
RNA	Research Natural Area
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
RPA	Resources Planning Act\
SIA	Special Interest Area
SMS	Scenery Management System
STL	Suitable timberlands
TAMM	Timber Assessment Market Model
T&E	Threatened and Endangered
TES	Threatened, Endangered and Sensitive
TMDL	Total Maximum Daily Load
TSTL	Tentatively suitable timberlands
USC	United States Code
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service
VRU	Vegetation Response Units
VQO	Visual Quality Objective
WFIP	Wildland Fire Implementation Plan
WFSA	Wildland Fire Situation Analysis
WSA	Wilderness Study Area

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